

**PATENT-BACKED DEBT FINANCE:
SHOULD COMPANY LAW TAKE THE LEAD
TO PROVIDE A “TRUE AND FAIR” VIEW
OF SME PATENT ASSETS?**

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ABBREVIATIONS

AWM	Advantage West Midlands
Basel II & III	The second and third of the Basel Accords issued by the Basel Committee on Banking Supervision
BBA	British Banking Association
CA 2006	Companies Act 2006
CDB	China Development Bank
CIPA	Chartered Institute of Patent Attorneys
Companies House	An executive agency of DTI which registers and provides information on all UK companies under the Companies Acts
CPC	Community Patent Convention
DMSTI	Danish Ministry of Science, Technology and Innovation
DTI	Department of Trade and Industry (United Kingdom)
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
EUR	Euro
FASB	Financial Accounting Standards Board
FRC	Financial Reporting Council
GAAP	Generally Accepted Accounting Principles
GBP	Great Britain Pound
IAS	International Accounting Standard
IASC	International Accounting Standards Committee
ICS	Intellectual Capital Statement
IFRS	International Financial Reporting Standards
ILF	Institute of Law and Finance (Germany)
IPEC	Intellectual Property Enterprise Court
IPFI	Intellectual Property Finance Institute
IPR	Intellectual Property Rights
LGST	Legislative Guide on Secured Transactions
LLP	Limited Liability Partnership
NESTA	National Endowment for Science, Technology and the Arts
NHS	National Health Service
NPE	Non-practising entity(ies)
OFT	Office of Fair Trading
PA 1997	Patents Act 1977
PLC	Publicly listed company
PRC	People's Republic of China
R&D	Research and Development
RM	Malaysian Ringgit is the official currency of Malaysia
RMB	The renminbi is the official currency of PRC
SIPO	State Intellectual Property Office of the PRC
SME	Small and Medium-Sized Enterprise
TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights
UKHL	House of Lords (United Kingdom)
UKIPO	United Kingdom Intellectual Property Office
UKSC	United Kingdom Supreme Court
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
US	United States
USD	United States Dollar
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

PATENT-BACKED DEBT FINANCE: SHOULD COMPANY LAW TAKE THE LEAD TO PROVIDE A “TRUE AND FAIR” VIEW OF SME PATENT ASSETS?

Janice Denoncourt

ABSTRACT

The most important high technology intellectual property (IP) rights in terms of innovation are patents,¹ a form of intangible property right. Even though these corporate assets drive 21st century technological innovation, patent-backed lending to UK SMEs remains underdeveloped. One reason is that the value of their internally generated patents is under-reported in traditional financial statements due to the application of International Accounting Standard 38 Intangibles. The accounting problem is exacerbated by the fact that SMEs are exempt from company law requirements to present a directors’ Strategic Report in their annual return to Companies House. The astonishing lack of quantitative and qualitative public information about corporate IP assets makes it difficult to assess their strategic value (“the patent value story”) and directors’ stewardship of those assets. While this may restrict access to debt finance, this thesis argues there is a wider corporate governance issue. More relevant, accurate and timely corporate IP information (mostly known to internal management) is needed to triangulate intangibles financial data through cross verification with corporate narrative disclosure. The multidisciplinary insights into the transparency corporate problem and how directors fulfil existing obligations to provide “true and fair” IP information under UK law provide an academic audience with a deeper level of legal analysis concerning the intersection between: (1) the patent ecosystem; (2) accounting for intangibles; (3) patent-backed debt finance; and (3) corporate disclosure. Knowledge is advanced with an original business triage style *Essential, Desirable & Optional* narrative corporate disclosure model.

¹ Torremans, P. *Holyoak & Torremans Intellectual Property Law* (7th ed.) Oxford University Press, p45

1 Introduction and methodology

The human species, according to the best theory I can form of it, is composed of two distinct races, the men who borrow and the men who lend.

Charles Lamb (1775-1834) in *Essays of Elia: The Two Races of Men* (1823)

The most important high technology intellectual property (IP) rights in terms of innovation are patents,² a form of intangible property right. Even though patents are corporate assets that drive technological 21st century innovation, patent-backed debt finance is underdeveloped and underused in the UK and elsewhere. This method of finance simply involves using a patent or a portfolio of patent rights as security for a loan. This thesis argues that there is a market failure in recognising IP as an asset in financial accounts and in corporate narrative reporting. However, a transformation of the patent-backed debt finance ecosystem may be close to the tipping point³ as public announcements of patent-backed lending initiatives around the world are published, making it an increasingly alluring finance option.

An early example of a patent-backed loan relates to Lewis Waterman⁴, an American small business owner who invented a superior fountain pen that made inkwells and dip pens obsolete, while he worked as an insurance agent. Waterman is said to have vowed to invent a better writing instrument when an inferior pen leaked on an important insurance contract, causing a delay which led to him losing the client.⁵ In 1884, he borrowed \$5,000 USD

² Torremans, P. *Holyoak & Torremans Intellectual Property Law* (7th ed.) Oxford University Press, p45

³ The tipping point is the critical point in an evolving situation that leads to a new and irreversible development.

⁴ Lewis Edson Waterman (November 18, 1837 – May 1, 1901) was the inventor of the capillary feed fountain pen and founder of the famous Waterman Pen Company. He was inducted into the US National Inventors Hall of Fame in 2006.

⁵ US Inventors Hall of Fame Biography of Lewis Edison Waterman, at http://www.invent.org/Hall_Of_Fame/308.html

backed by his fountain pen patent⁶ to start the Ideal Pen Company in New York. This is the first known reported example of patent-backed debt finance. Five years later in 1899 he opened a factory in Montreal, Canada. When he died in 1901, his nephew Frank D Waterman took over the company, renamed it the L E Waterman Company and proceeded to increase sales to 350,000 pens per annum. The fountain pens were widely used until the Great Depression made them a luxury item.⁷ Even today, 130 years later, the Waterman Paris⁸ company continues to design and sell luxury writing instruments, inks and refills and the Waterman brand is globally renowned.

The point of this century old example is to illustrate the crucial role banks loans have already played with respect to patent-backed debt finance. Nevertheless, it remains an uphill battle for small to medium-size (SME) businesses to access debt finance and as a result, many early stage patented technologies firms fail due to under-capitalisation. In light of the global financial crisis⁹ and subsequent downturn in the UK economy, there is now an even more pressing need to facilitate the use of patents as the underlying asset in a loan transaction. Imperfect access to debt finance funding is an important barrier to commercialising innovation as, compared with larger companies, SMEs at the beginning of the business life cycle frequently lack the internal financial resources to support commercialization.¹⁰

The scale of our modern economy's value dependency on intangibles has been recognised in many reports commissioned by the UK government, including the 2006 *Gowers Review of Intellectual Property*¹¹ and the *Digital Economy Report* (2011).¹² The shift

⁶US Patent 293,545 Fountain Pen, 12 February 1884.

⁷ After World War II the invention of the disposable ballpoint pen dominated.

⁸ Since 2000 Waterman Paris has been a wholly owned subsidiary of the American group Newell Rubbermaid.

⁹ Claessens, S., Kose, M.A., Laeven, L., Valencia, F. *Financial Crises: Causes, Consequences, and Policy Responses* (February 2014) International Monetary Fund; Kirkpatrick, G. 'The Corporate Governance Lessons from the Financial Crisis' (2009) 96 *Financial Market Trends* 1 at 4.

¹⁰ *Options for an EU Instrument for Patent Valorisation* (2012) Prepared by the Expert Group on IP Valorisation, European Union, p18

¹¹ Gower, A. *Review of Intellectual Property* (December 2006) HM Treasury on behalf of the Controller of Her Majesty's Stationery Office, p3

to intangible assets, including patents, copyright, trade marks, designs and several others, as the major driver of value in corporations is clear. In March 2014 the Department of Business, Innovation & Skills (BIS) confirmed that:

...Investment in ‘intangible’ assets has increased by more than 10% to £137.5 billion from 2009 to 2011 and nearly half of this investment was protected by formal Intellectual Property Rights...Data shows investment in intellectual property and ‘intangible’ assets is growing and continues to outstrip investment in tangible assets, such as buildings and machinery, which fell slightly from £93 billion to £89.8 billion. The figures signal the growing value UK businesses attach to knowledge, innovation and creativity.¹³

Traditionally, the nature of assets used as security in loan transactions mainly included land, plant, stock, inventories and receivables. Gold, jewelry and other tangible assets including antiques and works of art are used as security. While the ratio of the value of intangible assets to the value of tangible assets owned by companies has steadily increased from the late 1970s to date,¹⁴ fast forward to 2014 and we see that innovating SMEs still struggle to secure loans using their patents,¹⁵ a valuable form of personal property available for use as security. Whereas large corporations have used their IP and patent assets to raise loan capital, few innovating SMEs have followed the same trend.¹⁶ More than 99% per cent of UK companies are SMEs and do not issue publicly trade-able securities, making them

¹² Hargreaves, I. *Digital Opportunity: A Review of IP and Growth* (May 2011) Independent report commissioned by the UK Prime Minister, p3

¹³ ‘New figures published today show that UK business is building success through knowledge and creative assets’ (21 March 2014) Department Business, Innovation and Skills at <https://www.gov.uk/government/news/uk-knowledge-investment-continues-to-grow>

¹⁴ Kramer, W.J. and Patel, C.B. ‘Securitisation of intellectual property in the US market Marshall (6 June 2013) Gerstein & Borun, Chicago, IL

¹⁵ Patents are considered personal property as established in s 30(1) PA 1977

¹⁶ Donegan, C. ‘Industry report – IP finance: the asset class that fell to earth’ (20 May 2015) at <http://www.iam-media.com/industryreports/detail.aspx?g=9b5ac3a7-9514-4a99-85d8-a17b4f39bcd0>

reliant on credit from banks to grow their businesses. Whilst in quoted (publicly listed on a stock exchange offering shares to the public) and large private companies, the value of intangible patent assets is recognised in their market value, for unquoted SMEs there is no comparable mechanism for them to measure and demonstrate the value of the patent assets inherent in their business to use as security or collateral¹⁷ or for bank loans.¹⁸

Fortunately, important and meaningful recent developments in IP and patent-backed finance have recently provided impetus to consolidate knowledge with respect to this under-exploited yet promising financing method. In the UK, research focusing specifically on patent-backed debt finance has been published in the independent *Banking on IP?* Report (2013).¹⁹ Speaking at the Alliance for IP Conference in London on 17 October 2013, the then Business Secretary Vince Cable said:

SMEs are the lifeblood of the economy. Most of our successful creative businesses are SMEs and we know that Intellectual Property represents a big part of their assets and growth potential. But too often, through risk aversion or banks' conservative lending practices linked to property as security, IP is not catered for by traditional bank lending. Intellectual property is too important an asset to be undervalued by banks who are the main source of finance. That is why I commissioned a report to explore how we can improve SMEs' access to capital. We will look carefully at its recommendations in order to better support this country's creators and IP-rich businesses.²⁰

¹⁷ Collateral is the US term for 'security'.

¹⁸ Garrett J. F. *Banks and Their Customers* (1995) Dobbs Ferry NY: Oceana Publications, p99

¹⁹ Brassell, M. and King, K. *Banking on IP? The role of Intellectual Property and Intangible Assets in Facilitating Business Finance Final Report* (6 November 2013) Independent report commissioned by the UKIPO

²⁰ 'Plans Unveiled to support IP-rich businesses get funding' (17 October 2013) Department for Business, Innovation & Skills, Intellectual Property Office and the Rt. Hon Dr Vince Cable MP

The EU's *Final Report from the Expert Group on IP Valuation* (2014) relates to future actions on IP policy, especially with respect to the changing European Commission and review of Europe 2020.²¹ These publications indicate that both the UK and the EU seek to achieve a better understanding of the interplay between IP and debt finance, increasing confidence in IP valuation with the goal of facilitating financing to innovating SMEs. These reports show a high level of momentum in the region to tackle this important commercial problem, a challenge that has the potential to transform the future of commercial lending. On 31 March 2014, the UK government formally responded to the *Banking on IP* report promising to promote a greater understanding of IP within businesses seeking finance and the financial sector; and to create systems to give lenders confidence in assessing the value of IP and the risks involved in lending using IP as security.²² The UKIPO stated:

...In 2014/15 the IPO will therefore focus attention on improving the ability of IP-rich businesses to secure access to growth finance - by building understanding of IP in the business and the financial services communities, by enabling a more productive dialogue between businesses and lenders, and by building greater confidence in the value of IP assets as collateral.²³

Similarly, this thesis focuses on a practical commercial problem within a legal context, namely how to improve access to patent-backed debt finance by innovating SMEs.²⁴ For our purposes, use of the term “innovating SMEs” refers to SMEs involved in research

²¹ *Final Report from the Expert Group on Intellectual Property Valuation* (2014)

²² *Banking on IP? an active response* (31 March 2014) UKIPO at <https://www.gov.uk/government/publications/banking-on-ip-an-active-response>

²³ *Ibid* p20

²⁴ In the UK, ss382 and 465 of the Companies Act 2006 define a SME for the purpose of accounting requirements. A small company is one that has a turnover of not more than £6.5 million, a balance sheet total of not more than £3.26 million and not more than 50 employees. A medium-sized company has a turnover of not more than £25.9 million, a balance sheet total of not more than £12.9 million and not more than 250 employees. The EU definition (Recommendation 2003/361/EC adopted on 1st January 2005) is similar to the UK definition except it includes a category called ‘micro’.

and development (R&D) with a view to making patent applications or holding granted patents. We assume that an innovating SME with patent assets adopts a private limited company legal structure registered with Companies House and is classified under the s.477 of *Companies Act 2006* (CA 2006) as a SME for financial reporting purposes. The reason for concentrating on innovating SMEs is that, following the global financial crisis which began in 2007,²⁵ SME access to finance was formally recognised as an issue of pressing importance at the G20 summit held in 2009.²⁶ Since that period, the ability and willingness of commercial banks to fund SMEs in the UK has generally declined despite government initiatives to increase lending. At the same time, a bank loan or commercial mortgage is the preferred method of finance for 36% per cent of SMEs, followed by a bank overdraft (23% per cent) and loans/equity from friends and family (10% per cent).²⁷ There are also gaps in the level of finance and patent law knowledge in many innovating SMEs.²⁸ Data from BIS, as reported by the Federation of Small Businesses (FSB), confirms that at the beginning of 2013, SMEs accounted for an astounding 99.9% per cent of private sector business in the UK, 59.3% per cent of private sector employment and 48.1% of private sector turnover. SMEs employed 14.4 million people and had a combined turnover of £1,600 billion. Over 62% per cent were sole proprietorships, 28.5 % per cent (1.4 million) were companies and 8.9% per cent were partnerships.²⁹ The Federation of Small Business (FSB) reported that one in five firms blamed their poor – or non-existent – access to finance as the main barrier to achieving

²⁵ *The run on the Rock Fifth Report of Session 2007-2008 House of Commons Treasury Committee* (2008) Vol.1, House of Commons London: The Stationer Office Ltd pp 4 – 20. Also known as a credit crunch, it is a decline in the general availability of loans (or credit) coupled with a tightening of the conditions required to obtain bank loans. A credit crunch is accompanied by a “flight to quality” by lenders, as they search for less risky investments, often at the expense of SMEs.

²⁶ ‘G20 Leaders’ Statement’ (September 2009)

²⁷ Lomax, S. and Davies, E. *Small and Medium Sized Enterprise (SME) Journey towards raising external finance* (October 2013) A Report by BMG Research commissioned by BIS, p68

²⁸ Supra [10]

²⁹ Small Business Statistics (2013)

growth aspiration plans.³⁰ The significance of these statistics should not be underestimated given that SMEs collectively produce more than half of Britain's wealth (gross domestic product or GDP).³¹ FSB Chairman John Walker declared that, "If small firms cannot access credit, it constrains their investment plans." The UK's long-term economic growth and prosperity depends on SMEs.

Although there are presently many barriers to patent-backed debt finance in the UK, one barrier that has not been studied sufficiently is the unintended effect of the "small companies' regime"³² aimed at reducing administrative regulatory burdens on by exempting directors of SMEs from providing a narrative corporate report concerning their stewardship of company assets. The combined effect of traditional accounting principles (with respect to intangibles) and corporate disclosure laws has created a void of publicly available patent information in the format typically used by commercial lenders when assessing a borrower's credit application. This thesis adopts a multidisciplinary approach, in particular, by adding a company law and corporate disclosure layer into the analysis, in order to derive the research objective and research questions. It investigates the deficiencies in traditional accounting for intangibles which can, it is argued, be potentially solved by increased corporate narrative disclosure concerning those patent assets in order to change the perception of risk currently held by lenders contemplating patent-backed loan transactions. Enhanced narrative disclosure could help to reduce the information gap, make patent assets more visible in public accounts and assist lenders to seize the opportunity to develop a lending relationship with the innovating SME, rather than remain inactive. Another alternative is a test case to judicially

³⁰ *Federation of Small Businesses Quarterly Report* (18 June 2012) Independent report produced by the Centre for Economic and Business Research (CEBR) for the FSB

³¹ Ibid

³² Small Companies and Groups (Accounts and Directors' Report) Regulations 2008 as amended by the Small Companies (Micro Entities' Accounts) Regulations 2013. This means that SMEs can take advantage of some exemptions to disclose less information.

consider whether International Accounting Standard (IAS) 38 provides a “true and fair” view with respect to the financial value of patent assets. This could result in legal authority to depart from the IAS 38 standard. Thus, it is argued, company law should take the lead to provide a true and fair view of SMEs’ patent assets.

This research investigates how certain risks inherent in patent assets can be managed to reduce the level of uncertainty perceived by lenders. The following statement by Scott Bell, Head of UK Investment Banking at Deutsche Bank, clarifies the lender’s perspective about the lack of patent information and the impact on lending decisions:

...Without data about value and risk, ownership, strategy and information allowing us to make market comparisons, it is hard to see how a functional and active market can be developed; and while data is not the only ingredient, transparency, visibility and understanding of the patent world has to be the starting point.³³

Given the broad nature and characteristics of the patent ecosystem,³⁴ it was not possible to deal with all the potential risks that might create uncertainty concerning patents as a form of loan security. Accordingly, this study focuses on the earliest steps in the credit appraisal stage of the secured loan transaction and the need for increased corporate disclosure of patent assets and strategy at this point in time in order to create transparency, visibility and understanding of the borrowers’ patents as valuable commercial assets. This would assist lenders to forecast the growth potential and future cash flow of the SME’s business with greater precision and accuracy and put a probability on the forecast. As noted by Phillips:

³³ Phillips, J. (Ed.) *The Trillion Dollar Tipping Point AISTEMOS Report* (September 2014) AISTEMOS, London, p8

³⁴ A ‘patent ecosystem’ is a term coined using James F. Moore’s strategic planning concept of a business ecosystem developed in the early 1990s and now widely adopted by the high technology community in the US. The basic definition was noted in Moore’s book, *The Death of Competition: Leadership and Strategy in the Age* (1997) HarperCollins Publishers, p22

...There seems to be a disjunction between the high value of intangibles, such as patents in court and in transactions, on the one hand, and their relative lack of appeal as security for loans on the other. Faced with a request for finance backed by such intangibles, banks sometimes appear to behave as though the choice before them lies between taking a bad risk and making no loan at all. This is not the result of malice or willful blindness, but stems from the paucity of information on which banks can assess the nature of the risk they take in lending on intangible securities.³⁵

The advantage in applying for and being granted a patent is that in addition to creating a new asset which can be used as a source of security for loans, patent assets have the potential to create a royalty revenue stream, bolster financial statements and provide a shield against aggressive competitors. However, this requires a largely upfront financial investment by the owner. Imperfect access to debt finance funding has a comparatively greater negative impact on SMEs at the beginning of the business life cycle than on larger firms who have more finance options.³⁶

Another barrier to patent-backed lending is the uncertainty inherent in the boundaries and enforceability of the SME's legally constructed patent rights. Analysing the underlying financial value of the SMEs patent assets and associated risks is still difficult for lenders. Intangible patents are constructed by legal rules and the rules that define patent monopolies are the subject of constant change via case law and the doctrine of judicial precedent which in the short term reduces certainty, although in the long term the *stare decisis*³⁷ legal method

³⁵ Supra Phillips [32]

³⁶ Supra [9] p18

³⁷ The phrase 'stare decisis' is an abbreviation of the Latin phrase *stare decisis et non quieta movere* which translates as "to stand by decisions and not to disturb settled matters". The doctrine provides that the decision of a higher court acts as binding authority on a lower court within that same jurisdiction

increases certainty. The more complex the uncertainties, the higher the risk for the lender in the event of default. This, and other factors, make a patent difficult, but not impossible (if the lender has adequate and sufficient information) to value. In the absence of trust and confidence, commercial lenders rely disproportionately on security and when they do its quality can easily come into question.³⁸ Therefore in order to reduce the uncertainties inherent in intangible patent assets, three salient issues need to be addressed:

- (1) reducing uncertainty in relation to the time-limited value generating potential of patents;
- (2) increasing the financier or bank's tolerance of the legal risks inherent in lending against patents; and
- (3) improving the liquidity of patent assets to cushion the lenders' position in the event of default.

The issues affecting credit appraisal decisions require detailed research and efforts by policymakers, lenders and borrowers as well as interested parties, such as the accounting, legal and patent attorney professions in order to overcome the patent information gap. The aim of this thesis is to add to the body of knowledge related to patent-backed debt finance with a view to its application within the UK.

The rest of this introductory chapter is organised as follows. In section 1.1 the author's motivation for undertaking the research is discussed. Section 1.2 highlights the emergence of law and finance as an interdisciplinary academic discipline. Deficits in the current research and literature are explained in section 1.3. Section 1.4 sets out the research concept and methodology. Section 1.5 focuses on the originality of the thesis.

³⁸ *Innovation in access to finance for SMEs* (2014) Association of Chartered and Certified Accountants, p11

1.1 Motivation: SMEs and patent finance

As in-house legal counsel for a publicly listed Australian mining technology company, Brandill Limited (now merged with “Ausdrill”),³⁹ the author became interested in the clash between three cultures: IP law, finance and corporate governance. In the 1990s the business acquired a patent portfolio of certain non-explosive rock breaking technology inventions (based on NASA rocket technology) at a bargain price from a small private US firm in Chapter 11 insolvency proceedings.⁴⁰ Although the US firm owned a valuable patent portfolio it was in financial dire straits and had exhausted its ability to finance operations and was wound up. On insolvency its patent portfolio was still a valuable asset. As such, it was perplexing why the company was unable to borrow additional funds to stabilise its cash flow and continue to trade. At that time, as a new student of IP in the 1990s, albeit with a law and business background, the variety of factors inhibiting access to debt finance within the patent ecosystem were not clear. As a public company, my duties included drafting Australian Stock Exchange announcements and annual reports including corporate disclosure of IP assets. It is still the case that most lenders are unwilling to accept patent assets as security, a barrier to business growth. Yet, modern capitalism is propelled forward by innovation and finance, despite the fact that these two powerful factors have different outcomes. While innovation is typically growth-friendly, financing innovation is often described by lenders as high-risk speculation. Lenders are more likely to ration credit and this undermines innovation rather than promotes it. When the author began her research as a part-time doctoral student in 2007, little was known about the intersection between patent law, finance and corporate governance. Presently, the field is gaining momentum.

³⁹ Brandill Limited (BDL) was de-listed from the Australian Stock Exchange following the merger with Ausdrill Limited effective 12 December 2009.

⁴⁰ Title 11 of the United States Bankruptcy Code

1.2 Emergence of law and finance as a new interdisciplinary discipline

Recent global attention on innovation and IP finance⁴¹ has led to a greater focus on the need for research that addresses complex questions that cannot be answered within a single discipline. The research integrates the insight of the traditional disciplines to create new knowledge. The legal profession has always learned about business and finance as a function of legal practice, and finance professionals learn about business law as a requirement of their professional accreditation. Indeed corporate lawyers and financiers are professional cousins who interact closely over the course of their careers. It is not surprising that important research into IP finance (specifically patent-backed finance) and corporate governance transcends the scope of the single discipline. Research integrating information, perspectives and concepts derived from bodies of specialised knowledge is required in order to advance fundamental understanding and solve problems that are beyond the scope of the single discipline.⁴² In this thesis, multi-disciplinarity brings patent law, accounting and company law to the same table and has the goal of connecting the disciplines in pursuit of an increased understanding of the barriers to patent-backed debt finance. The increasing awareness of the need for interdisciplinary research is echoed by Dr Leon Vinokur, at Queen Mary University of London, who states, “In the current environment...there is a growing demand for experts that can understand the interdisciplinary complexity of the financial system.”⁴³ Published research on the subject of law and finance is beginning to emerge, mainly in the field of financial regulation (law) and economics.⁴⁴ In

⁴¹ A major reason for this is due to two patent transactions in 2011, namely (1) the sale of the Nortel patent portfolio for USD \$4.5B to a consortium of smart phone manufacturers and (2) Google's stock acquisition of Motorola Mobility for USD \$12.5B.

⁴² Adapted from the definition created by the Committee on Facilitating Interdisciplinary Research, Committee on Science, Engineering and Public Policy (2004). *Facilitating interdisciplinary research*. National Academies. Washington: National Academy Press, p2

⁴³ <http://www.law.qmul.ac.uk/docs/postgrad/50754.pdf>.

⁴⁴ See UK law journals such as the *Law and Financial Markets Review* (Hart Publishing) and *Butterworths Journal of International Banking and Financial Law*

terms research activity in Europe, the IP Finance Institute (IPFI) based in Torino, Italy carries out research projects about IP as an economic asset and IP-based financing solutions.⁴⁵

1.2.2 WIPO initiatives

WIPO's involvement in IP Financing is to raise awareness among its member states' IP offices, and the wider IP community of the current international policy development. WIPO held its inaugural Information Meeting on IP Financing in 2009 in Geneva, Switzerland. Director-General Francis Gurry identified what he believed to be the principal reasons for considerable difficulty in developing IP financing: (1) the lack of a clear connection between the security and the underlying asset; and (2) the complexity; and (3) lack of transparency in the IP system that results in distrust of the intangible economy.⁴⁶ The latter statement directly supports a key aim of this thesis - to encourage further narrative corporate disclosure of patent asset information and strategy. This will improve transparency and reduce complexity in a format that lenders and other stakeholders will trust to better inform their understanding of intangibles as business assets.

In 2008, a WIPO-Argentina Conference entitled "Intellectual Readiness: The Role of Intangibles as a Tool for Raising Finance" was held in Buenos Aires,⁴⁷ followed by a WIPO Information Meeting on IP Financing in 2009. 'Theme 5: Financial Institutions Perspective of IP Financing' involved Ms Megan Deane, Deputy Managing Director of the national Export-Import Bank (E-IB)⁴⁸ of Jamaica who presented on 'Taking IP to the Bank'.⁴⁹ She stated the 2010 Vision for E-IB was to increase the bank's tolerance for credit risk. This idea is discussed further in Chapter 3. Ms Helena Tenoria Veiga de Almeida is Head of Policy

⁴⁵<http://www.ipfinance-institute.com>

⁴⁶ Tuncak, B. The WIPO Information Meeting on IP Financing: Some Notes (1 April 2009)

⁴⁷ See details of WIPO's IP Finance related meetings at http://www.wipo.int/meetings/en/details.jsp?meeting_id=16342

⁴⁸ A bank wholly-owned by the government of Jamaica.

⁴⁹ http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=118034

Design Department, Intangible Assets Evaluation Program of the Brazilian Development Bank (BNDES). She discussed IP asset valuation for finance purposes using internally developed methodology for intangibles to evaluate 56 quantitative and qualitative and patent information indicators to derive an intangible capital (IC) rating. The need for both quantitative and qualitative patent information is further developed in Chapters 4 – 7.

1.2.3 UN Commission on International Trade (UNCITRAL) initiatives

Since 2004 WIPO has cooperated with UNCITRAL to ensure that the views of the IP community are taken into consideration in policy development on the issue,⁵⁰ participating in deliberations to develop the *Legislative Guide on Secured Transactions* (LGST) to assist states modernise their secured transactions laws and enable effective access to finance. Theme 6 of the WIPO Geneva 2009 meeting focused on international policy development for IP financing. Mr Spiros Bazina, Senior Legal Secretary of UNCITRAL and Working Group VI⁵¹ explained the relationship between IP, secured transactions law and the interaction between the LGST and the IP Annex. Briefly, the LGST is not a restatement of current law, but rather a guide to reform of secured transactions law with the economic goal of facilitating the use of both movable and intangible property as security to facilitate increased access to credit at lower cost.

Both UNICITRAL and WIPO continue to play vital roles as facilitators for the international debate on IP finance, signaling the credibility and need for additional research.

⁵⁰ WIPO Meeting to Explore IP as a Financing Tool Geneva (5 February 2009)

⁵¹ http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=118036

1.2.4 UK initiatives

The first notable UK initiative for innovation finance took place in 2006 when the UKIPO jointly organised a conference on “Patents: realising and securing value” together with the European Patent Office (EPO) and the Organization for Economic Cooperation and Development (OECD). This high-level event was aimed at raising awareness of the crucial role of IC in the knowledge economy. In particular, conference literature stated that, ‘the economic impact of patents still enjoys little attention from the business and finance communities’.⁵²

In 2008, the UKIPO partnered with the Austrian and Hungarian Patent Offices and the National Board of Patents and Registration of Finland to hold four international symposiums on “IP Valuation in Business”, the primary aim of which was to raise awareness of IP valuation issues and increase dialogue among stakeholders.

Further interest in UK IP finance issues has been led by Professor Jeremy Phillips,⁵³ founder of the weblog *IP finance* in January 2008 whose webpage banner declares:

...Where money issues meet IP rights. This weblog looks at financial issues for intellectual property rights: securitization and collateral, IP valuation for acquisition and balance sheet purposes, tax and R&D breaks, film and product finance, calculating quantum of damages—anything that happens where IP meets money.⁵⁴

The *IP finance* blog is an offshoot of Professor Phillips’ earlier blog the *IPKat*⁵⁵ which began in June 2003 and covers IP issues generally, from a UK and European perspective. The *IPKat* team organised the first UK IP finance conference in London on 15

⁵² ‘Patents: realising and securing value - an international conference in London’ (15 August 2006)

⁵³ Professor Phillips is an IP consultant for commercial law firm, Olswang and editor of the *European Trade Mark Reports* and the *Journal of Intellectual Property Law and Practice* and formerly Research Director of the UK’s Intellectual Property Institute.

⁵⁴ <http://ipfinance.blogspot.co.uk/>

⁵⁵ <http://www.ipkat.com/>

October 2009. A second conference, *IP and Finance 2010: exploring and explaining the financial dimensions of IPRs*, soon followed which shared the knowledge of speakers from a range of disciplines to identify the complex issues arising when IP and finance interact.

1.2.5 Singapore's IP financing scheme

However, Asia is currently setting the pace in IP-backed lending and UK lenders need to consider adjusting their mind-set to profit from the changing environment. At the forefront of such initiatives is Singapore. In April 2014 the IP Office of Singapore (IPOS)⁵⁶ launched a substantial S\$100 million "IP Financing Scheme" designed to support local SMEs to use their granted patents as collateral for banks loans.⁵⁷ To be eligible, applicants must be incorporated and have granted patents to use as security. The scheme has three steps. First, with its granted patent(s), an applicant can approach a participating financial institution for a preliminary assessment. The participating banks are: DBS Bank Ltd;⁵⁸ Overseas-Chinese Banking Corp Ltd;⁵⁹ and the United Overseas Bank Ltd.⁶⁰ Next, a panel of IPOS-appointed valuers assess the applicant's patent portfolio using standard guidelines to provide lenders with a basis on which to determine the amount of funds to be advanced. The development of a national valuation model is a noteworthy aspect of the scheme and could lead to an accepted valuation methodology for the future. Finally, the applicant submits a formal application to the participating lender.⁶¹ Under the terms of the loan agreement, the interest rate for repaying the loan is not fixed and depends on the granted patent portfolio valuation.⁶²

The Singapore government will subsidise the valuation but this is capped at 50% of the IP

⁵⁶ IPOS is a statutory board under the Ministry of Law that advises and administers the IP regime, promotes its usage and builds expertise to facilitate the development of Singapore's IP eco-system at www.ipos.gov.sg

⁵⁷ 'Singapore Launches S\$100M IP Financing Scheme & First One-Stop IP Service Centre' (8 April 2014) *IP Office of Singapore*

⁵⁸ www.dbs.com.sg

⁵⁹ www.ocbc.com.sg

⁶⁰ www.uob.com.sg

⁶¹ IP Financing Scheme (14 November 2014) IPOS see <http://www.ipos.gov.sg/IPforYou/IPforBusinesses/IPFinancingScheme.aspx>

⁶² 'Singapore: IP Financing Scheme Launched' (16 July 2014) *Managing IP*

valuation cost, or 2% of the value of the IP, whichever is lower.⁶³ If the borrower defaults, the loan will be partially underwritten by the Singapore government, thus the liquidity of the patent assets on default is minimised.⁶⁴

The IPOS IP Financing Scheme is contributing to the evolution of patent-backed debt finance with the Singaporean government investing a substantial sum in creating an environment in which patent-backed debt finance has the potential to thrive. If the scheme proves to be a credible model it could become the preferred template within the international IP community. Singapore ranks first in Asia and second globally for IP protection according to the World Economic Forum's Global Competitiveness Report 2014-2015.⁶⁵ The country's strong IP regime together with its well-established and diverse finance sector and support from major financial institutions adds to its credibility.

1.2.6 The PRC IP pledge financing programme

Also of interest, but less influential, are the People's Republic of China's (PRC) State IP Office (SIPO) patent-backed debt finance initiatives.⁶⁶ In terms of a functional comparative analysis of IP finance related issues, a foreign system should always be seen from the inside and in a socio-cultural context.⁶⁷ The PRC's IP regime is just over 30 years old, yet its government has been extremely proactive in raising awareness to ensure that domestic enterprises understand the future value-creating potential of IP.⁶⁸ In 2004, SIPO began to design the nation's IP strategy which evolved from membership in the World Trade Organization. In 2006, the landmark policy, *The Guidelines on National Medium and Long-*

⁶³ Ibid

⁶⁴ 'From ideas to Assets: Singapore's IP Financing Scheme' (1 September 2014) *Managing IP*

⁶⁵ 'Singapore ranks tops in Asia for IP Protection' (12 September 2014) www.ipos.gov.sg

⁶⁶ 'Patent Right Pledge Financing Amounted to 25 Billion Yuan' (3 March 2014) *IP China News* as reported in English at http://www.chinaipr.gov.cn/policyarticle/policy/statistics/201403/1801673_1.html

⁶⁷ Palmer, V. 'From Leretholi to Lando: Some Examples of Comparative Law Methodology' (2004) *Global Jurist Frontiers*, Vol. 4 Issue 2, Art. 1, pp2- 5

⁶⁸ Shao, F. and Feng, X. *Innovation and Intellectual Property in China* (2014) Edward Elgar, US as stated by Graham Duffield in the Foreword.

Term Program for Science and Technology Development (2006-2020) was issued.⁶⁹ A pilot “IP pledge financing” programme followed in 2008. According to *China IP News*, only 6 years later in 2014, SIPO reported that Chinese companies had secured over £6 billion GBP in patent-backed loans since the programme launched. In 2013, Chinese companies had apparently secured over £2.4 billion GBP (25.4 billion yuan) of credit against patent assets.⁷⁰ Unfortunately, SIPO does not appear to have published information about how the scheme works. From the standpoint of Western lenders and borrowers, it is difficult to determine how Chinese financial institutions carry out credit appraisals leading to positive decisions to grant patent-backed loans. However, the fact that the Chinese government has more direct control and input into commercial bank lending policy and capital adequacy requirements enables it to vigorously and potently implement its strategic goal of increasing patent-backed lending. In 2012, China’s Ministry of Finance issued the new “Measures for the Administration of Special Funds for Subsidising Foreign Patent Applications”. The regulation outlines policies for PRC citizens and entities that file patent applications abroad.⁷¹

Further, in 2014 the largest-ever IP-backed debt finance loan emerged in the PRC. A trade publication, *China Paper*, reported⁷² that Quanlin Paper, a Shandong province-based company, secured a loan of approximately £78 million GBP (RMB 7.9 billion) against a small portfolio of 110 patent and 34 trade mark rights from a lending consortium led by the China Development Bank (CDB).⁷³ Although the quality of Quanlin’s patent and trade mark portfolio is indeterminate, the scale of the loan speaks for itself and for that reason alone, is worthy of attention. The loan was reportedly recorded on 21 February on SIPO’s IP asset

⁶⁹ Ibid pp30 – 31

⁷⁰ Cohen, M. China blog ‘China to Provide Financial Incentives for Filing Patent Applications Abroad’ (12 June 2012) ChinaIPR blog at <http://chinaipr.com/2012/06/>

⁷¹ ‘Chinese company’s \$1.3 billion patent and trade mark loan enters the IP deal Pantheon’ (4 April 2014) *Intellectual Asset Magazine* blog at <http://www.iam-media.com/blog/Detail.aspx?g=481b76b6-637f-427f-b8d6-78d06cece504>

⁷² The original report was in Mandarin and was translated into English.

⁷³ Supra [70]

register. The CDB is a PRC government-owned financial institution created in 1994 by the Policy Banks Law of 1994.⁷⁴ At its head is a cabinet minister level Governor, under the direction of the State Council. It is one of three policy-making banks in the PRC primarily responsible for raising finance for large infrastructure projects. The CDB was involved in financing the Three Gorges Dam and the Shanghai Pudong International Airport and is described as ‘the engine that powers the national government’s economic development policies’.⁷⁵ Most of Quanlin Paper’s small portfolio of IP rights are limited to China.⁷⁶ The portfolio was valued at £600 million GBP (RMB 6 billion)⁷⁷ but details as to the valuation process for credit purposes has not been officially reported to date. This would assist to confirm if the sale of Quanlin’s portfolio would enable the CDB to recoup its loan in the event it defaults. Whether the PRC credit appraisal methodology is capable of being adopted by Western economies, and is a compelling and credible case for change, is certainly debatable and an area for future research. In a public statement, Jiang Lurong, general manager of the Shandong branch of Bank of Communications (part of the consortium that syndicated the loan) said:

“...IP seems intangible, but it reflects the ability of value creation and sustainable operation of enterprises. Banking risk is not increased, but may be able to get a hold of high-quality customers early and improve the structure/makeup of the client base.”⁷⁸

⁷⁴ <http://www.cdb.com.cn/web/> (no English translation)

⁷⁵ Forsythe, M. and Sanderson, H. ‘Financing China Costs Poised to Rise With CDB Losing Sovereign-Debt Status’ (June 2011) *Bloomberg Market Magazine*

⁷⁶ ‘A revolution postponed’ (May/June 2014) pp5-6

⁷⁷ Supra [70]

⁷⁸ Supra [70]

Debts issued by the CDB owned by local banks are treated as “risk-free assets”. Under the proposed PRC’s capital adequacy rules for intangible they receive the same treatment as government bonds and the CDB is effectively insured by the government. In contrast, under Basel III,⁷⁹ applicable to the UK and the EU, intangibles are rated as more risky types of assets requiring banks to hold more capital under the capital adequacy regulations which is a deterrent to patent-backed lending.⁸⁰ Intangibles are treated as lower-quality security and intangible assets are not usually counted toward the loan’s security because they are considered too difficult to value. The barrier to patent-backed debt finance created by banking capital adequacy requirements will be discussed in section 3.8.

The amount of funding Quanlin secured against its IP portfolio signals the substantial support for patent-backed debt finance initiatives in the PRC. Empirical research has shown that the increase in government subsidies, equity capital and bank loans have all helped to improve the capacity for self-driven innovation in Chinese enterprises.⁸¹

1.2.7 Malaysia Debt Ventures Bhd (MDV) IP Financing Scheme (IPFS)

This RM200 million⁸² IPFS was introduced by the Malaysian government in 2013 to assist the tech sector. The scheme has since disbursed RM40 million in loans to 11 companies and there are reportedly 19 new applications worth RM70.8 million, 6 of which are in the final evaluation stage. The applicants, most of whom emanate from the ICT⁸³ sector, are qualified to enjoy the 2% government rebate and 50% government guarantee administered by Credit Guarantee Corp Malaysia Bhd. The loan term is 5 years (including a grace period of up to 12 months) carrying an interest rate of between 7.5% and 9.5%. MDV

⁷⁹ ‘Basel III: A global regulatory framework for more resilient banks and banking systems’ (December 2010), Revised June 2011) *Basel Committee for Banking Supervision, Bank for International Settlements* pp6-23

⁸⁰ Ibid

⁸¹ Song Xianzhong and Liu Zhen, ‘On Financing Efficiency of Technology Innovation of High-Tech Enterprise’ (2008) *Journal of Accounting*, No.8, pp10-12

⁸² Malaysian Ringgit currency.

⁸³ Information and communications technology.

allocates a margin of 80% of the value of the IP (if the IP is valued at RM10 million then the amount advanced can be up to RM8 million). Although all forms of IP are accepted as security, trade marks and patents are preferred. However, MDV generally requires a corporate guarantee and takes a debenture⁸⁴ over the company's other assets.⁸⁵

In summary, patent-backed debt finance has arrived in Asia and lenders in the UK and around the world should sit up and take notice. Although beyond the scope of this thesis due to the language barrier and lack of publicly available English translation of key documents, Singapore, the PRC and Malaysia's progress with patent-backed debt finance should be carefully studied by the UKIPO and other government policymakers. The high level of public funds to support IP finance stands in marked contrast to the position in the UK and other patent-intensive developed nations.

1.2.7 The US Patent Quality Initiative (PQI)⁸⁶

The US is an important global player that is also steadily advancing the IP finance agenda. In October 2014 the Clearing House,⁸⁷ a US banking industry group representing more than 20 US and international financial institutions, formed the PQI, a project aimed at eliminating inferior patents through better prior art searching, research and filing thereby enhancing the quality of patents used as security.⁸⁸ According to Lloyd, the initiative reflects the increased sophistication of financial institutions with respect to patents, as lenders begin

⁸⁴ A form of loan contract.

⁸⁵ Wong, A. "Banking on IP" (9 February 2015) *The Edge Malaysia*, pp4-5.

⁸⁶ See www.patentqualityinitiative.com

⁸⁷ The Clearing House is the oldest banking association in the US and is owned by the world's biggest commercial banks, who hold more than half of all US deposits. It is self-described nonpartisan advocacy body representing the interests of its owners on significant banking issues. The Clearing House Payments Company L.L.C. provides payment, clearing and settlement services to its member banks and other financial institutions, clearing just under \$2 trillion USD daily. See www.theclearinghouse.org

⁸⁸ Oblack, S. 'Patent Quality Initiative Launched to Facilitate Better Patents and Fewer Disputes' (15 October 2014) *The Clearing House* at http://www.patentqualityinitiative.com/news/press%20releases/2014_oct%2015_pqi%20launch

to realise the value of their own e-commerce patent portfolios and create internal IP teams to more effectively manage their patent strategies.⁸⁹

1.3 State of the field and deficits in the current research and literature

Academic studies from several domains, for example accounting, economics, finance and law have extensively documented how patents are increasingly prominent in commerce. Patents no longer play solely the role of legal instrument, but also act as a valuable commercial tool. The increase in the number of patents filed worldwide over the last two decades and the growth of the markets for these assets has convincingly confirmed this trend.⁹⁰ While there are volumes of material concerning patent law, patent litigation, increasingly significant publications relating to patents and economics (Italy and Germany); non-practising entities (NPEs) and the patent transactions market, there remains a significant deficit in the current research and literature related to patent-backed lending, intangibles, innovation financing and corporate disclosure of IP. There is little widespread understanding of the patent-backed debt finance transaction from the standpoint of lenders' concerns regarding uncertainty, risk and liquidity. Nor is there detailed literature available as to how to facilitate patent-backed debt finance transactions from a commercial perspective, given the multidisciplinary actors involved. There is little grasp (especially for actors outside the inner circles) of the difficulties arising at the initial decision-making stage when the lender appraises the innovating SME's loan application and evaluates the patent portfolio, especially the paucity of relevant, reliable and accurate information about the value of patent assets and strategy. This is largely due to the fact neither common principles nor best practice in corporate IP disclosure have emerged. How these limiting factors should be addressed to improve patent owners' access to debt finance is discussed in Chapters 4-8. Nevertheless, a

⁸⁹ Lloyd, R. 'New banking group launches with focus on improving patent quality' (15 October 2014) *Intellectual Asset Magazine* blog at <http://www.iam-magazine.com/blog/detail.aspx?g=972D0D5D-D116-42FD-945D-82AC28C33B3A>

⁹⁰ Munari, F. and Oriani, R. (2011) p *xi*

commercial lending methodology based on the estimated present and potential value of the patent assets, which requires analysis of non-financial qualitative patent indicators, has begun to develop in the UK. A small group of lenders, the Clydesdale Bank,⁹¹ Santander⁹², and the UK branch of the Silicon Valley Bank are expanding the market for patent-backed finance.⁹³

Academic and industry literature, Internet and desk research have been used as background; however, very few documents focus on patent-backed debt finance *per se*. There is little literature from the viewpoint of the lender (a major actor and stakeholder in the patent-backed finance transaction) or concerning corporate narrative reporting of IP. This thesis canvasses the literature concerning patent-backed debt finance specifically (as opposed to intangibles and innovation financing generally which includes other IPR e.g. copyright and trade marks) and corporate narrative disclosure of patent assets.

The literature available on the subject of IP, secured transactions and debt finance began to appear in the 1980s, published by members of the legal profession and researchers from a variety of industrialised countries, notably Canada. An early work is McLaren's *Secured Transactions in Personal Property* relating to Canadian law.⁹⁴ At McGill University, Allsebrook and Maestre published an article entitled *Intellectual Property as a Security Device*.⁹⁵ In 1997 Norman Siebrasse published a working paper for the World Bank entitled, *A Review of Secured Lending Theory*.⁹⁶ In 2002 Canadian legal practitioner, Howard Knopf, published a seminal monograph entitled, *Security Interests in Intellectual Property*.⁹⁷ In 2004, the Law Commission of Canada published its report *Leveraging Knowledge Assets Reducing Uncertainty for Security Interests in Intellectual Property*.⁹⁸ In

⁹¹ Clydesdale Bank is part of the National Australia Bank Group.

⁹² www.santander.co.uk

⁹³ <http://www.svb.com/uk/>

⁹⁴ McLaren, R. H. (1989) Carswell 3rd ed. (ProView online)

⁹⁵ Allsebrook, D. & Maestre, S. (1996)

⁹⁶ Siebrasse, N. *A Review of Secured Lending Theory* (1997) Faculty of Law, University of New Brunswick, Canada

⁹⁷ Knopf, H. (2002) Toronto

⁹⁸ Law Commission of Canada (2004)

2006, K. Hatzikiriakos narrowed the focus to copyright and software with her monograph, *Secured Transactions in Intellectual Property: Software as Collateral* which also included a Canadian-US comparative law approach.⁹⁹ Meanwhile, in 2000 Australian Professor Jacqueline Lipton published *Security Over Intangible Property* which included a chapter with an overview of the issues arising when using patents as security.¹⁰⁰ These early works in the field are a valuable contribution to the subject of IP finance as they begin to provide a common theoretical framework. However, they only briefly touch on patent-backed debt finance, nor are they studied from a UK jurisdictional perspective.

In the US several publications became bestsellers in the American business community and captured worldwide attention. These included Rivette and Kline's *Rembrandts in the Attic: Unlocking the Hidden Value of Patents* (2000)¹⁰¹ which addressed the corporate challenge of how to strategically use patents as business assets. In 2001 Baruch Lev's *Intangibles Management, Measurement, and Reporting*¹⁰² was followed by *Einstein in the Boardroom: Moving beyond Intellectual Capital to I-stuff*.¹⁰³ The former advances the literature in three dimensions relevant to this thesis: the economics of intangibles; the empirical record of intangibles; and the harms arising from the lack of information regarding in intangibles.

In Europe, Italian research into IP finance began to emerge with some profundity. Elisa Ughetto's chapter entitled "The Financing of Innovative Activities by Banking Institutions: Policy Issues and Regulatory Options" in *Powerful Finance and Innovation Trends in a High-Risk Economy* articulates the European lender's perspective.¹⁰⁴ In 2011, Munari, Odasso and Toschi co-authored a chapter on patent-backed finance from an

⁹⁹ Hatzikiriakos, K. (2006)

¹⁰⁰ Lipton, J. (2000) LBC

¹⁰¹ Rivette, K., G., & Kline, D. (2000)

¹⁰² Lev, B. (2001)

¹⁰³ Harrison, S., Sullivan, P.H.(2006)

¹⁰⁴ Laperche, B. and Uzunidis, D.(Eds) (2008) Chapter 13

economics perspective, using case studies involving multinational pharmaceutical companies.¹⁰⁵ This work inspired the GlaxoSmithKline (GSK) case study in Chapter 6 with respect to corporate disclosure. The Munari *et al* research is relevant, although written from an economic theory of finance perspective focusing on large powerful borrowers, as opposed to innovating SMEs, as in this thesis.

In 2014, the *Final Report from the Expert Group on Intellectual Property Valuation* (IP Valuation Report) published.¹⁰⁶ The European Commission appointed multi-disciplinary panel of experts to consider how IP valuation plays a part in innovation policy and where bottlenecks occur. This report investigated European best practice in IP valuation as performed by financial institutions that provide capital to SMEs, including examples relating to debt-financing. The panel noted a significant difference in the approach to lending to SMEs compared with large companies with a strong trading history and further, financial institutions interviewed expressed the view that IP is usually too risky to be used as security for traditional commercial loans.¹⁰⁷ The Final Report explored the inadequacy of IAS38 intangibles and recommended the filing of a “management report” together with a company’s annual report, giving detailed information about IP value in order to improve publicly available information on intangibles generally.¹⁰⁸ This thesis further develops the Expert Group’s research through the creation of a narrative patent information and strategy disclosure model in Chapter 7.

In the UK, the academic literature is quite limited but of high quality beginning with Bezant’s ‘The Use of IP for Security in Debt Finance’ in 1997,¹⁰⁹ followed by Davies article ‘Secured Financing of Intellectual Property Assets and the Reform of English Personal Property Security Law’ in 2006 which examines the commodification and valuation of

¹⁰⁵ Munari, F and Oriani, R. (Eds) (2011) pp309-336

¹⁰⁶ Supra *IP Valuation Report* [20]

¹⁰⁷ Supra *IP Valuation Report* [20] p6

¹⁰⁸ Supra *IP Valuation Report* [20] p7

¹⁰⁹ (1997) *Intellectual Property Quarterly* 297

IPR.¹¹⁰ Dr. Joanna Perkins¹¹¹ article ‘Registration of Charges over Intangibles (UK)’¹¹² is narrowly focused on advising legislators of registration regimes applicable to financial intangibles on the impact of certain European measures. In 2010, Dr Andrea Tosato,¹¹³ at the University of Nottingham, published an influential article entitled ‘Security Interests over Intellectual Property’¹¹⁴ which adopts a broader approach than the former, dealing with specific legal issues associated with security devices, registration and priority within the UK legal framework.

Turning to the scant interdisciplinary literature on the subject of IP and accounting, legal scholar and economist, Dr Roya Ghafele¹¹⁵ studied how the highly formalised language of accounting deals with the concept of intangibles. In ‘Accounting for IP?’¹¹⁶ she notes that accounting processes and terminology document past performance rather than expectations of the future resulting in accounting statements inadequately reflect how IP relates to business performance. This suggests that inadequate information negatively impacts on the lender’s ability to accurately assess a borrower’s creditworthiness in patent-backed transactions. Dr Ghafele’s work is a springboard for the development of the thinking in this thesis, which argues that law, rather than accounting, should take the lead to ensure a “true and fair” view of patent assets and to overcome the invisibility of those assets in the traditional financial accounting statements. Dr Ghafele participated in the Panel of Experts that produced the 2014 *IP Valuation Report*.¹¹⁷

¹¹⁰ Davies, I.R. ‘Secured Financing of IP Assets and the Reform of English Personal Property Security Law’ (Autumn 2006) 26(3) *Oxford Journal of Legal Studies* pp 559-583

¹¹¹ Barrister with South Square Chambers London, formerly Secretary of the Financial Markets Law Committee in charge of projects addressing solutions to legal uncertainty in the wholesale financial markets.

¹¹² Perkins, J. (July 2010) pp360-365

¹¹³ In 2010 Dr Tosato is a delegate to UNCITRAL and participated in negotiations that produced the Supplement on Security Rights in IP.

¹¹⁴ Tosato, A. ‘Security Interests over Intellectual Property’ (2011) 6 (2) *Journal of Intellectual Property Law and Practice*

¹¹⁵ Fellow at the Said Business School, Oxford University

¹¹⁶ Ghafele, R. ‘Accounting for Intangibles’ (2010) 5(7): 521-530 *Journal of Intellectual Property Law & Practice*

¹¹⁷ *Supra IP Valuation Report* [20]

Finally, the UKIPO commissioned the comprehensive *Banking on IP?* Report¹¹⁸ published in late 2013 which catalogued the challenges facing IP-backed debt financing, making recommendations as to how these obstacles might be surmounted. The report broadly discusses SMEs, IP awareness, IP value and accounting rules, UK debt and equity finance and policy initiatives, Clydesdale Bank's Growth Fund, liquidity and recording security interests. The key findings for the purpose of this thesis are (1) IP and intangibles must be identified during the financing process; (2) IP value needs to be taken into account; and (3) lenders need additional guidance by way of legal templates and a resource toolkit.¹¹⁹ The authors state:

...If IP and intangibles are to be given any consideration within credit decision-making, tools to identify and describe the actual assets (not merely evidence of expenditure) need to be embedded within the lending process. Businesses must use them, and lenders must understand and take note of them. This step will have the wider benefit of boosting IP awareness amongst the business community as a whole and will establish base data for the possible future use of IP as "full" security. The first steps are to provide a means for companies to identify the assets they own and to build information on IP and intangibles into the templates companies use when present information to prospective funders.¹²⁰

Following publication of *Banking on IP?*, the UKIPO convened a series of roundtable discussions with a multi-disciplinary group comprising representatives from the financial services sector, including banks, equity investors and insurers, from the business advisory community, including the IP profession, lawyers, accountants and general commercial

¹¹⁸ Supra *IP Valuation Report* [20]

¹¹⁹ Supra *Banking on IP?* [18] p216

¹²⁰ Ibid

advisers, and from a number of SMEs. In March 2014, the UKIPO published *Banking on IP: An Active Response* confirming that, ‘early action must focus on raising awareness and stimulating an appetite for change within both business and the financial services community’.¹²¹ The UKIPO intends to develop a series of real life case studies showing how a business has, through their IP management, secured finance and is working with the British Bankers’ Association (BBA) and its Business Finance Roundtable to create an awareness campaign.¹²² The UK is pressing ahead with its IP finance agenda.

The leading professional publication in the field is *Intellectual Asset Management* (IAM) launched in 2003 edited by Joff Wild. IAM and its associated blog¹²³ address the need for organizations to maximize the IP value and examine the strategies they can put in place to do this. IAM states that it is unique because it treats IP as a business asset and tool rather than simply a legal right.¹²⁴

For the most part, until 2013-2014, the international and UK literature adopted a traditional legal analysis approach, critically analysing the relevant legislative instruments and case law. The literature did not obviously address or assume a multidisciplinary approach from either the lenders’ or corporate regulators’ perspective. Recent exceptions to this are the *Banking on IP?* and the *IP Valuation* reports. While both adopt a multidisciplinary approach, only the latter directly addresses corporate narrative reporting, but not corporate governance or regulatory issues. Accordingly, there is embryonic scholarly research and professional interest in relation to IP finance. However, this thesis takes the view that as a matter of modern corporate governance, it is timely to introduce company law and corporate law regulators in the debate, examining company directors’ stewardship and existing legal obligations to deal with intangible IP assets in their corporate reporting.

¹²¹ Supra *Banking on IP: An Active Response* [21] p4

¹²² Ibid

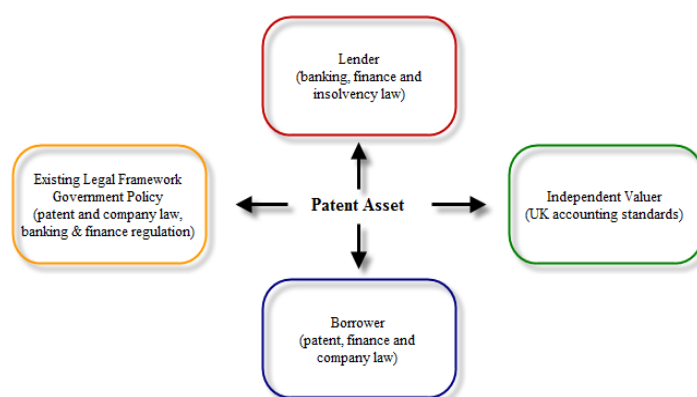
¹²³ <http://www.iam-magazine.com/Blog/Default.aspx>

¹²⁴ <http://www.ipbusinesscongress.com/2013/About.aspx>

1.4 Research concept and methodology

This thesis focusses on maximizing the use of patents as security for lending concentrating on the credit appraisal stage of the secured loan transaction. This type of research involves tackling an old problem from a multidisciplinary problem-solving perspective, which is necessary given the need to align the legal and finance environments to commercial reality. The starting point is defining the real-world problems faced by lenders. Figure 1 illustrates the interplay of the academic disciplines in the patent-backed finance transaction.

Figure 1 The patent asset as a tool to secure finance and the interplay of the academic disciplines



The methodology is mainly doctrinal involving traditional-style legal and business research into relevant primary sources for each discipline (patent law, accounting and company law); and partly qualitative involving examination of the relevant literature. Given the multidisciplinary subject matter, a variety of methodologies are used to identify and explore the various barriers to patent-backed debt finance. Chapter 2 uses a 'Political, Economic, Social, Technological and Legal' (PESTL) analysis¹²⁵ to provide an overview of and evaluate the different macro-environment factors that collectively impact on borrowers

¹²⁵ Aguilar, F. *Scanning the Business Environment* (1967) Macmillan, USA

and lenders contemplating a patent-backed lending transaction. This framework is commonly used in a business context but is uniquely and originally applied to the patent ecosystem. In Chapter 3 the methodology includes an original quantitative analysis of WIPO's *IP Advantage* database as well as a traditional legal analysis approach to banking capital adequacy regulation and the registration of patents as security. Chapter 4 adopts a traditional legal research methodology evaluating accounting rules, corporate legislation and case law. Chapter 5 involves a comparative functional analysis of narrative corporate IP asset disclosure using the US, Canada, Denmark and Germany as comparators, describing the conceptual frameworks and evaluating key principles. Chapter 6 considers company corporate narrative patent disclosure in practice, adopting a case study methodology which, according to Robson, is a strategy for doing research involving an investigation of a particular contemporary phenomenon in its real-life context.¹²⁶ Actual corporate patent information narrative disclosures are hermeneutically interpreted and evaluated. Chapters 5 and 6 provide the basis for the development of the proposed new model for patent information and strategy disclosure in Chapter 7.

1.4.1 Research questions

As the research progressed it was clear that a variety of reforms was needed to facilitate patent-backed debt finance and the best place to begin the study was at the early steps of inquiry taken by the lender during the credit appraisal stage where valuing the patent assets is critical. The main research question was "How should an innovating SME overcome the astonishing lack of relevant, useful and reliable information regarding its patent assets and strategy for generating value from those assets to enhance access to patent-backed

¹²⁶ Robson, C. *Real World Research* (1993) Blackwell, Oxford p53

debt finance?” Answering this question would open up an awareness of the finance potential of patents by lenders. Sub-research questions include:

- What environment do innovating SMEs seeking to borrow to finance their inventions and business presently face? Although concentrating on the UK, the thesis is not geographically limited in its perspective and draws on multidisciplinary developments in other countries with patent-backed lending experience.
- What PESTL factors indirectly affect patent-backed debt finance transactions?
- Are lenders interested in financing innovation and is the current commercial lending system conducive for doing so?
- How could debt finance feature at an earlier stage in innovation business life cycle?
- Why is IAS 38 Intangibles ill-equipped to document the value of patents?
- Is additional corporate narrative disclosure the proper way forward from a legal standpoint to show that the financial value attributed to internally develops patent assets is “true and fair”?
- How should additional narrative corporate disclosure of patent information and strategies be presented to order to give a “true and fair” view of the future value creating potential of the patent assets?
- What is the role of company law and corporate governance in this respect?
- How does a global company with access to the best advice present its patent information and strategy in its company annual return?
- Is the Intellectual Capital Statement (ICS), mandated in Denmark, an appropriate form of disclosure? Or should disclosure be by way of a management report, a growth report or a strategic report?

- Should the disclosure be voluntary or mandatory under the CA 2006 with respect to innovating SMEs?
- How should commercial lenders design their patent-backed debt lending policy?
- What UK policy reforms are needed to facilitate patent-backed debt finance?
- What international developments are taking place that may inform UK policy?

The research to answer these questions began with a deductive approach of the existing multidisciplinary literature including new materials published in 2015, refereed journal articles, practitioner articles, blogs, legal and business news. The author focused primarily on a legal and commercial analysis of patent-backed debt finance comprising reports, articles, books, opinions and legal writing, government information and website content. The multiplicity of materials used reflects the complex nature of the issues and considerations involved in the process of resolving multidisciplinary issues. The materials were examined in a critical manner and the analysis followed both a “what is the current practice” approach and “what the law and practice ought to be” approach. The final objective was to conceptualise a model for SME corporate patent information and strategy disclosure to simplify and provide an abstraction of a complex and diverse sphere of activity. The model, along with other aspects of the research, is presented using visuals. The use of visualisation in law is increasing as a means to present complex ideas simply. The analysis follows a logical design with issues divided into three main areas by:

- (1) identifying the source of the uncertainty (traditional accounting principles and lack of corporate narrative reports by SMEs);
- (2) reducing uncertainty through additional narrative corporate disclosure and determining the nature and format for such additional disclosure; and

- (3) making policy recommendations with respect to commercial lenders, government and stakeholders to facilitate innovative SME access to patent-backed debt finance.

While the analysis begins with the UK patent-backed debt finance landscape as formed presently, it moves beyond the present situation to achieve a plan for greater coherence of patent, accounting and corporate governance issues. The principles underpinning the narrative corporate disclosure solution will potentially have impact in jurisdictions beyond the UK and may apply to other forms of IP.

1.4.2 Scope and limitations: what the research does not do / does not cover

The thesis does not cover patent-backed securitisation (an American term), namely, the conversion of assets, cash flow or royalty streams into marketable securities (shares). This is not borrowing as such, since the entity securitising its assets is not borrowing money, rather it is selling interests in its future royalty stream or cash flow (a form of equity finance). Nor do we study patent aggregating (except in relation to these entities/actors as intermediaries to promote liquidity). Patent aggregators buy patents and are sometimes known as patent holding companies or patent intermediaries. They are not usually practising entities involved in R&D to patent inventions, generate products or processes. This thesis is not concerned with lending to patent aggregators, rather it focuses on lending to innovating SME R&D intensive operating companies that actively develop innovations for the market. However, one of the benefits of patent aggregators is that they operate as intermediaries in the unregulated patent market. Small inventors who find it difficult to finance their invention, or who lack the funds to defend their patent, may be tempted to sell to a patent aggregator. This financially benefits the inventor and some argue that such intermediate transactions indirectly promote innovation. Research into the creation of regulated patent

markets or patent auctions, needed to promote patent asset liquidity, are also not covered except in passing in connection with accounting concepts in Chapter 4. The research was limited by language barriers and developments in countries in few English language documents could not be pursued.

1.4.3 Thesis structure: flow of the thesis

This thesis focuses on patents and is structured as follows:

Figure 2 Focus and scope of the thesis

Intangible Assets	Patents	Copyright	Trademarks	Other forms of IP
Financing Sources	Private Finance		Public Finance	
Perspectives	Borrower <ul style="list-style-type: none"> • Savings • Family, friends • Private Equity • Loans 	Lender <ul style="list-style-type: none"> • Uncertainty • Risk • Risk tolerance 	Government <ul style="list-style-type: none"> • Policy • Support via awareness raising and education • Corporate governance regulation 	
Company Size	SMEs	SMEs		
Geographical Focus	UK	Europe Denmark, Germany	US	Singapore, PRC, Malaysia, Hong Kong

1.5 Originality

The research is original in the following respects. Chapter 2 makes an original contribution to knowledge in several respects. First, the concept of applying a PESTL analysis¹²⁷ approach to identify and evaluate the barriers to patent-backed debt finance in patent ecosystem as a whole. Second, the author introduced a behavioural finance analysis to the social factors affecting innovating SMEs inventors and lenders to enhance lenders' "trust" in patents as asset class. Third, the author identifies how the well-established Technology Readiness Level (TRL) system¹²⁸ could be used (see the new Model presented in Chapter 7).

¹²⁷ Supra Aguilar [124]

¹²⁸ Used by the EC, ESA, NASA and the Canadian Innovation and Commercialization Program

In Chapter 3 an original quantitative analysis of WIPO's IP Advantage database is carried out.

Chapter 4 legally analyses whether the application of IAS 38 Intangibles as applied to internally generated patent provides a "true and fair" view as required by s393(1) CA 2006 from a corporate governance perspective and considers whether there is scope to depart from the standard if its application would result in untrue or unfair financial information.

This research fills a gap in the field as it examines the unintended impact of company law regulations on innovating SME access to patent-debt finance. Chapters 4 and 5 identify that the accounting for intangibles problem is exacerbated by the fact that SMEs are exempt from the requirement to present a directors' strategic review in their annual company return (in order to reduce the burden of corporate regulatory compliance for SMEs). This astonishing lack of SME patent information available to lenders may itself restrict SME access to debt capital because lenders are unaware of, and lack understanding of the potential value of the SME's patent asset base and commercialisation strategy. This research suggests that what is needed is a better understanding of the intersection between accounting for intangibles, corporate governance, company law corporate disclosure requirements and credit appraisal with respect to innovating SMEs. Disclosure made within the legal framework of the CA 2006 increases legitimacy and authority of the information disclosed.

The key claim of this thesis, expanded in Chapters 4 – 7, is that narrative corporate reporting in the Strategic Report section of a UK SME's annual return of "true and fair" patent information and strategy would support innovating SMEs to overcome the "off balance sheet" valuation problem. The policy aim of increased disclosure by innovating SMEs is to facilitate more positive patent debt finance decisions being made by commercial lenders.

Chapters 5 - 7 also explore whether patent information and strategy disclosure by innovating SMEs should be mandatory or voluntary. This corporate governance issue has never been fully explored with respect to qualitative patent information in any of the innovation or IP finance literature. An original contribution to knowledge may be achieved by a comparative study of law. The issue under consideration is how to construct a better framework of legal measures for narrative corporate reporting of patent assets. Studies of the US, Danish and German of corporate narrative reporting of IC and IP have import for the UK jurisdiction. A comparative functionality study is relevant here because functionalism is an orientation towards the practical application of aspects of the law.¹²⁹

In terms of the format for disclosure, an original contribution in Chapter 7 is the creation of the *Essential, Desirable or Optional* disclosure model for qualitative non-financial patent information, designed to fit within the existing UK corporate reporting regime. This involved the novel use of organising qualitative patent indicators that, it is suggested, should form the basis for the content and structure of corporate narrative patent information and strategy disclosure. Thus it will offer an insight into normative possibilities for narrative corporate disclosure, which if adopted by innovating SMEs, can be used by commercial lenders to make better informed decisions.

1.5.1 Multi-disciplinary approach

This research is multidisciplinary legal scholarship in a UK context that further develops and advances the findings of recent academic and professional IP finance publications through a detailed analysis of corporate governance and corporate reporting law. This research makes new government policy recommendations to enhance innovating SME access to patent-backed debt finance, that advance various recommendations made in earlier

¹²⁹ Brand, O. 'Conceptual Comparison: Towards a Coherent Methodology of Comparative Legal Studies' (2007) *Brooklyn Journal of International Law*, 32(2), 405-466, p409

reports. It also considers, in more depth, how lenders should progress their patent-backed commercial lending policy (Chapter 8).

1.6 Importance of the topic and the future

In summary, according to Edwards, a confluence of factors has combined to set the stage for the need to develop access to patent-backed debt finance:

- the increase in technological innovation and the ensuing growth in patents;
- an environment of restricted capital markets especially in the venture capital and private equity arenas; and
- the growing realisation that patents represent strategic advantage that when viewed as financial assets that can greatly impact market value.¹³⁰

Moving into the future, patent-backed debt finance will become important as patent assets are a relatively untapped source of value and security while tangible personal and business assets, such as buildings and land, continue to decline within the UK SME community. As such, it is less likely that SME company directors will have sufficient tangible assets over which to give the loan guarantees required by lenders. Lenders who recognise and act to benefit from the enormous security potential in patent assets will have “first mover” advantage in the market. This thesis calls for the growth, development and maximisation of the use of patents as security for lending and involves analysing a variety of issues, regulations and approaches, ranging across several disciplines since the problems relating to patent-backed debt finance are rather “messy” and not soluble within the confines of the discipline of law. The main difficulty is how to adapt to the unique dynamic of legally

¹³⁰ Edwards, D. *Patent-backed securitization: A Blueprint for a New Asset Class*, Gerling NCM

created, intangible patent monopoly rights. This thesis argues that lenders' risk tolerance in relation to patent assets would be improved by supplementing the traditional financial statements with additional relevant and reliable information via the company's Strategic Report and that such qualitative disclosure is increasingly a corporate governance issue. The literature suggests that there is a strong positive association between the extent of a country's financial development and its growth rate, and that the direction of causation runs from finance to growth rather than the reverse.¹³¹ In other words, this thesis identifies the concept of "credit enhancement" where the lender will be reassured by company law taking the lead to ensure a stable, effective and efficient patent ecosystem. This thesis comprises 8 chapters.

Chapter 2 THE PATENT-BACKED FINANCE ECOSYSTEM uses a PESTL analysis methodology to set out the current environment in which patents operate in the UK and internationally.

Chapter 3 FINANCE AND INNOVATING SMEs confirms why debt finance remains a critical funding mechanism compared with other finance options with pilot study drawing on WIPO's *IP Advantage* database. The focus then turns to the impact of banking capital adequacy requirements for intangibles; the lenders' triad of concerns: uncertainty, risk and liquidity; and the system for registering security interests in patents.

Chapter 4 TRUE AND FAIR PATENT VALUATION: A CORPORATE GOVERNANCE ISSUE examines the uncertainties involved when measuring the patent value. This is not a legal problem, nor is it a patent law problem – this is an accounting discipline problem. The legal status of IAS 38 intangibles is analysed to determine whether its application provides a "true and fair" view of patent assets in financial statements.

¹³¹ Beck, T., Demirguc-Kunt, A and Levine, R. 'Legal Theories of Financial Development' (2000) Vol.17 No. 4 *Oxford Review of Economic Policy*

Chapter 5 THE NEED FOR INCREASED VOLUNTARY CORPORATE PATENT ASSET DISCLOSURE BY INNOVATING SMEs examines the lack of publicly available financial and corporate narrative information concerning an innovating UK SME patent assets. The benefits accruing to entities that disclose additional qualitative information concerning their patents in corporate reports is discussed leading to an investigation of the viability making supplementary disclosure using the Strategic Report in a company's annual return. We investigate whether the ICS, mandated in certain jurisdictions and encouraged by certain banks in Hong Kong, is appropriate for innovating UK SMEs.

Chapter 6 THE DISCLOSURE OF PATENT INFORMATION IN UK CORPORATE NARRATIVE REPORTING introduces the views of the Financial Reporting Council (FRC) followed by examples of qualitative narrative "patent disclosures" made by pharma company GSK in its 2012 annual report.

Chapter 7 A MODEL FOR VOLUNTARY CORPORATE NARRATIVE PATENT INFORMATION AND STRATEGY DISCLOSURE draws on the literature and findings in Chapter 6 to present an original *Essential, Desirable and Option Patent Information and Strategy Disclosure Model*. Potential criticism of enhanced patent disclosure is also discussed.

Chapter 8 FACILITATING PATENT-BACKED LENDING DECISIONS IN THE UK: CONCLUSIONS AND RECOMMENDATIONS considers first how innovating SMEs could enhance their access to patent-backed debt finance, secondly how banks could develop their patent-backed lending policies and thirdly, the role of the government as policy co-ordinator in this multidisciplinary field, culminating with the author's conclusions and recommendations.

2 The patent-backed finance ecosystem

The patent system introduces some of the greatest complexities in the capitalist rules of the game and leads to many anomalies.

J. Robinson,
The Accumulation of Capital, 1956

The patent ecosystem is the subject of this chapter and a broad overview of the environment in which patent-backed lending operates is presented. This serves as a theoretical framework, adopting a multidisciplinary approach to examine specific factors that affect the extent to which commercial banks are willing to engage in patent-backed lending to innovating SMEs. An effective patent granting and enforcement system is vital. Our evaluation enables us to conclude that the UK patent ecosystem is sufficiently equipped and well-developed to facilitate this finance method. Section 2.1 explores the strategic commercial reasons for patenting inventions. Section 2.2 introduces the Political, Economic, Social, Technological and Legal (PESTL) analysis¹³² to give an overview of the external macro-environment factors that collectively impact on borrowers and lenders. Section 2.3 evaluates the political factors affect UK patent policy. Section 2.4 studies economic factors that affect innovating SME access to finance. Section 2.5 adopts a behavioural finance¹³³ approach to critically analyse social factors influencing inventors and lenders. Section 2.6 considers emerging technologies, patent backlogs, Horizon 2020: The EU International Strategy for Research and Innovation and Technology Readiness Levels (TRL). In section 2.7 conclusions gleaned from the PESTL analysis support policy design to enhance access to patent-backed debt finance addressing forecasted changes to the patent ecosystem.

¹³² Supra Aguilar [124]. Professor Francis Aguilar of Harvard University is credited with being the creator of PEST Analysis. He included a scanning tool called ETPS in his book, *Scanning the Business Environment* (1967) Macmillan. The name was later updated to include legal factors in the current acronym.

¹³³ Baltussen, G. 'Behavioural Finance: An Introduction' (13 Jan 2009) Available at SSRN: <http://ssrn.com/abstract=1488110>

2.1 Why innovating SMEs patent

Patent rights protect new, industrially applicable inventions and give the inventor or proprietor ('the patentee') a legally recognised monopoly to work the invention for a period of up to 20 years.¹³⁴ A UK patent is governed by national laws, and also by international treaties, when those treaties have been given effect in UK domestic law, providing exclusive rights only in the UK and not in any other country. Patents are legal instruments intended to encourage innovation by providing a limited monopoly to the inventor (or their assignee) in return for the disclosure of the invention. Publication of the invention is mandatory in order to be awarded a patent.¹³⁵ The patent law system recognises that innovation and technological developments, both crucial tools for a country's financial and social wealth, cannot be motivated solely by market competition. In Chapter 1 we saw that IP and patents in particular, are increasingly reshaping the landscape of modern business. A key commercial advantage of a patent monopoly is that it can prevent unauthorised third parties from using the invention for a limited period. While under monopoly protection, the *Patent Act 1977* provides that only the patentee is lawfully allowed to commercially exploit the invention.¹³⁶ The scope of that right in any particular case is determined by the claims in the patent specification.¹³⁷ Further, there is strong evidence pointing to a positive association between patenting and measures of firm performance.¹³⁸ Patenting is correlated with superior performance, as indicated by a firm's sales of innovative products and growth in employment.¹³⁹ Firms with innovations that are new to the market are considerably more

¹³⁴ Section 25(1) PA 1997

¹³⁵ Phillips, J. 'The English Patent as a Reward for Invention: The Importance of an Idea' (1982) 3 *Journal of Legal History* 71

¹³⁶ Section 60 PA 1977

¹³⁷ Section 14 PA 1977

¹³⁸ Hall, B., Helmers, C., Rogers, M. and Vania, S. 'The importance (or not) of patents to UK firms' p1 at: <http://niesr.ac.uk/sites/default/files/publications/dp410.pdf>

¹³⁹ Ibid p4

likely to patent.¹⁴⁰ Further, innovating SMEs usually prefer patents over the cost and inconvenience of maintaining their inventions secret (although un-patentable “know how” may need to be kept confidential). Typically, firms that apply for patents have undertaken a commercial analysis of the pros and cons of patenting and arrived at a considered conclusion that the benefits of obtaining a monopoly over their invention exceed the costs and that patent rights will provide stronger protection than keeping the invention confidential¹⁴¹ or defensive publication.¹⁴² Strong patents (certain validity) are preferred over weak patents (at risk of being invalidated). However, even weak patents can be used anti-competitively and have their strategic uses which should be borne in mind. In addition, firms patent their inventions because they wish to: (1) prevent others from copying or free-riding; (2) block other firms from competing; (3) use them in cross-licensing negotiations and raise licensing revenue; and (4) enhance their business reputation.¹⁴³ These IP management strategies are important information for lenders to consider.¹⁴⁴

2.2 The PESTL model

An innovating SME on its own cannot make patent-backed finance more accessible, many factors will play a part. By scanning the environment, we will have a better understanding of the positive and negative influences that impact on the development of patent-backed debt finance. The PESTL framework is commonly used in a business context

¹⁴⁰ Supra Hall [137] p10

¹⁴¹ The key disadvantage of a trade secret is its vulnerability to reverse engineering.

¹⁴² The act of publishing a detailed description of a new invention (without patenting it) to disclose prior art and public identification as the originator, or anonymously. A defensive publication prevents others from later being able to patent the invention.

¹⁴³ Corporate Patent Strategy WIPO p 33; Pletscher, T. ‘Corporate Strategies for Managing, Exploiting and Enforcing IP Rights’ (December 1988) WIPO pp1 - 6

¹⁴⁴ Academics, economists, STEM professionals and policymakers have conflicting views on patents and there is contentious debate in the field. These critical debates form part of an extensive discourse on IP protection beyond the scope of this thesis.

and represents one of the vertebrae of the backbone of strategic analysis providing a broad overview of the factors that are beyond the control of both innovating SMEs and financiers (an external perspective) yet which play an important role in value creation and the potential for enhancing patent-backed lending in the UK.

2.3 Political factors that impact on UK patent policy

Over the past two decades, the patent system has experienced significant changes worldwide. Consequently, the UK's patenting behavior and legislation are prominent public policy themes. Analysis of the political environment will focus on patent law regime policy as it relates to innovating SMEs. The UKIPO¹⁴⁵, an Executive Agency of the Department for Business, Innovation and Skills (BIS) is responsible for IP rights granting, formulating and delivering policy on patent topics.¹⁴⁶ It has direct administrative responsibility for examining and issuing or rejecting patents, and maintaining the UK patent register. Several reports are published annually, including a *Patent Office Annual Report and Accounts*¹⁴⁷, a *Corporate Plan* and a *Facts and Figures* report. The latter provides statistical data on annual trends for patents. The UKIPO actively engages with BIS, supporting the wider BIS agenda. It has been a key delivery partner in the BIS Knowledge and Innovation Group, and contributed directly to the Government's Growth Agenda by improving the accessibility of the IP system to UK businesses at home and abroad.

In 2005, the Chancellor of the Exchequer commissioned Andrew Gowers to conduct an independent review into the UK's IP framework known as the *Hargreaves Review of IP and Growth* published in May 2011.¹⁴⁸ The Government expressly acknowledged that its decision to carry out the Review was in recognition of the growing importance of IP and the

¹⁴⁵ <http://www.ipo.gov.uk>

¹⁴⁶ The Patents Law Amendment Act 1852 established the first patent office in the UK on 1 October 1852.

¹⁴⁷ The Annual Report is presented to Parliament pursuant to section 121 of the PA 1977.

¹⁴⁸ *Supra* Hargreaves [11] pp18-19

challenges brought by the changing economic environment.¹⁴⁹ The Review concluded that the UK's IP system is fundamentally strong but made 54 recommendations for enhancements and with respect to SMEs, recommended:

Better provision of IP information to UK businesses at home and abroad. This will extend from greater information provided to firms on how to use IP strategically when they register at Companies House, through stronger support and better information via the Business Link network, to expert advice provided by UK Trade and Investment and the Patent Office for UK firms abroad.¹⁵⁰

The Review made five recommendations relevant to this thesis. Recommendation 22 sought to maintain the high quality of patents awarded by increasing the use of section 21 PA 1977 observations, thereby streamlining procedures and raising awareness. This is positive in terms of patents as financial assets because high quality patents have less risk of invalidity and will be assessed as more valuable. Recommendation 24 was for the UKIPO to develop stronger links with universities and other research institutions to ensure that IP examiners are aware of recent developments in technology, thus enhancing the examination process and therefore the quality of patents. Recommendation 27 sought to improve SME business IP support by establishing formal collaboration between the UKIPO and Business Link¹⁵¹ and by conducting a pilot replicating the French "IP Genesis" scheme. The latter offers a free IP audit to French SMEs who are not using the French IP system, especially the patent system. Recommendation 31 asked the Department for Trade and Industry (DTI) to consider whether

¹⁴⁹ Supra Gowers [10]

¹⁵⁰ Supra Gowers [10] p4

¹⁵¹ Business Link was a UK government-funded business advice and guidance service in England. It consisted of an online portal-managed by HMRC and a national helpline. This ended in 2011 and was replaced by the new [GOV.UK](http://gov.uk) website in 2012.

guidance for firms on intangible asset reporting could be improved, including the provision of model IP reports. This recommendation did not specifically contemplate corporate narrative disclosure by SMEs (the subject of Chapters 5, 6 and 7 of this thesis) rather it was aimed at forming a working group to identify and promote best practice to maximise the use of effective financial support schemes nationwide. Unfortunately, a relatively low proportion of Gowers' recommendations were taken forward. In February 2007 the UKIPO launched its Innovation Support Strategy to implement Recommendation 27.

In June 2007 the position of Minister of IP at BIS was created making the UK the only country in Europe to have a dedicated Minister with an IP portfolio, though it is a junior ministerial role, showing the UK is a leading nation within global patent ecosystem. For all practical purposes however, the impact of the Minister of IP has not been very visible to date. This is likely because since 2007 there have been 6 ministers and little continuity in policy implementation.¹⁵² Originally, the IP Minister was to take forward the implementation of the Gowers' recommendations, however, the role does not hold responsibility for small business, enterprise and access to finance which is another minister's responsibility. There is a need for the IP Minister to play a more active role in coordinating policies relating to innovating SMEs, IP awareness raising, advice and innovation finance.

In 2008 the UKIPO appointed its first IP economist (the EPO appointed its first Chief Economist in 2004) and in 2009 developed a complementary work programme to build economic evidence for the development of IP policy. This unit is important for quantifying and analysing IP-related data.¹⁵³ This led to the next event on the government's policy

¹⁵² Following the Prime Minister David Cameron's cabinet reshuffle, Viscount Younger of Leckie was replaced as UK intellectual property minister by Baroness Lucy Neville-Rolfe, a former executive of TESCO. She was appointed Parliamentary Under Secretary at BIS on 17 July 2014. The Baroness is also responsible for IP enforcement and will have to implement the Intellectual Property Act 2014.

¹⁵³ Phillips, J. 'Katonomics 4: Where to look for an IP-oriented economists' (28 November 2008) The IPKat http://ipkitten.blogspot.co.uk/2011_11_01_archive.html

agenda, namely, to overcome weaknesses in the UK's IP system identified in the *Hargreaves Review* focusing on recommendation 8 Enforcement of IP rights and the need to introduce a small claims track for low monetary value IP claims in the Patents County Court.¹⁵⁴ This measure is in place and enhances IP enforceability for smaller firms via the new IP Enterprise Court (IPEC).¹⁵⁵ Hargreaves Recommendation 9 Small Firm Access to IP Advice echoes the *Gowers Review* stating that:

The IPO should draw up plans to improve accessibility of the IP system to smaller companies who will benefit it. This should involve access to lower cost providers of integrated IP legal and commercial advice.¹⁵⁶

Other key issues currently being dealt with by the UKIPO include:

- (1) substantive patent law harmonisation;
- (2) patent backlogs;
- (3) the proposed EU (Community) Patent;
- (4) the reform of the Patent Convention Treaty (PCT) system;
- (5) computer-implemented inventions i.e. software patents;
- (6) collaboration with the EU to create a European Patent Court (EPC).

The UK's first ever IP Attaché was appointed in 2011 to work in Beijing, PRC as part of the Government's plans to unlock the growth potential of business abroad as and to assist with advice on IP enforcement.¹⁵⁷ This led to the creation of a network of IP Attachés to key

¹⁵⁴ Supra Hargreaves [11] Recommendation 8

¹⁵⁵ The Patents County Court was renamed the Intellectual Property Enterprise Court (IPEC) in October 2013.

¹⁵⁶ Supra Hargreaves [11] p9

¹⁵⁷ New IP Attaché in China will support UK businesses (8 December 2011)

foreign markets including Brazil, India and South East Asia managed and funded by the UKIPO, supported by the Foreign & Commonwealth Office and UK Trade and Investment.¹⁵⁸ The *IP Attaché Evaluation Report* concluded that while 85% of businesses state their IP assets are important, only 56% of businesses felt they had a comprehensive understanding of IP.¹⁵⁹

In 2013 the UKIPO published its plans to help all SMEs maximise the value of their IP, as part of the BIS innovation strategy setting out the UKIPO's engagement with SMEs.¹⁶⁰ The [GOV.UK](https://www.gov.uk) website offers basic advice regarding finance and investment for start-ups including equity finance and loans.¹⁶¹ As at 2015, the UKIPO's suite of tools for businesses and their advisors to enhance awareness of IP assets and how they can be protect and exploited includes:

- *IP Basics* – a free guide on the different types of IP and how they can be used to add value to a business;
- *IP Equip* – a free interactive e-learning tool to help identify assets which may be protected by IP;
- *IP Health Checks* – a series of free basic diagnostics to allow business to identify potential risks and opportunities; and
- *IP Master Class* – a more in-depth training package, offered in online or in person which covers IP and its use in business, including the topic of IP enforcement.¹⁶²
- *IP Tutor* – an IP awareness and education online package aimed at Universities.¹⁶³

¹⁵⁸ *IP Attaché Evaluation Report: Programme Review* (October 2014/39) Research commissioned by the UKIPO and carried out by Tonic Insight Ltd.

¹⁵⁹ Ibid p7

¹⁶⁰ *From Ideas to Growth, Helping SMEs get value from their intellectual property* (2012)

¹⁶¹ <https://www.gov.uk/business-finance-explained/loans>

¹⁶² *Supra Banking on IP an Active Response* [21] p5

¹⁶³ Launched by the UKIPO on 5 March 2015.

- *IP Finance Toolkit* – a 44 page document published by Coller IP (who participated in the project).¹⁶⁴

The *IP Finance Toolkit* is a significant step to advance the core topic of this thesis, patent-backed lending. It was developed in response to the recommendations made in *Banking on IP?* Report and was achieved by the UKIPO forming a working group consisting of representatives from banks, IP professionals, business support networks and businesses. It is aimed at assisting lenders and businesses and is an excellent starting point for creating the dialogue needed to facilitate patent-backed lending. It is recommended future developments:

- provide more specific advice and templates to capture the different types of IP e.g. patents, trade marks and copyright;
- include case studies to illustrate positive lending decisions (particularly to encourage lenders confidence in IP-backed lending);
- highlight the availability of the free interactive online *IP Health Check Tool* which can be used in tandem with the *IP Finance Toolkit* to produce a confidential IP asset report;
- indicate that SMEs may make a voluntary narrative report on their IP assets and strategy in the Strategic Report of their annual report to Companies House using the new disclosure model developed in Chapter 7.

In summary, political factors play a key role in shaping the UKIPO's activities and priorities in the public interest and influences the government national and international objectives and priorities. The need to educate businesses, lenders and financial professionals

¹⁶⁴ See <http://www.colleripmanagement.com/news/ip-finance-toolkit>

to increase awareness of the value of IP assets and support a constructive dialogue is ongoing, yet lacks visibility in terms of policy. In conclusion, the government needs to demonstrate more effectively that its structures and ministerial appointees are coordinating policies in relation to innovating SMEs, IP, finance and in particular corporate regulation (to be discussed in the following chapters). Next, we consider patent monopoly rights from an economic perspective.

2.4 Economic approach to patents as a driver for innovation: influence on lenders and borrowers in patent-backed lending transactions

Everyone in the UK has an important stake in the modern market economy as it has the potential to continue to create prosperity and maintain a high standard of living. From a 21st century economic point of view, a patent is an instrument of competition¹⁶⁵ that has grown in value in an increasingly knowledge-based economy. Offering individuals the short-term right to exclude others from practising an invention provides them with the opportunity to earn royalties or supra-normal profits which are higher than they would earn if there were immediate free entry into imitation of their invention.¹⁶⁶ This is why the patent system is widely believed to stimulate inventive and economic activity. For example, innovating SMEs try to use any new technological advance or invention as a way of boosting their profits. However, there are also weaknesses in the market system. Both economic theory and practical experience have established many examples of where markets, free and unfettered, bring inefficiency.¹⁶⁷ This is currently the problem plaguing undeveloped and underused patent-backed debt finance. Where the distant future is concerned, or where rational

¹⁶⁵ Competition and Patents: Introduction, Studies and Articles, WIPO

¹⁶⁶ McEachern, W.A *Economics: A Contemporary Introduction* (2012) 10th ed., Cengage Learning, Chapters 9 and 10

¹⁶⁷ Fulcher, James *Capitalism A Very Short Introduction* (2004) Oxford University Press, p41

decision-making involves making a careful assessment of risk or where borrowers and lenders have asymmetric information (an imbalance in the quality and quantity of information) about the future potential economic value of patents, the transactions between them are distorted and lending transaction costs increase.¹⁶⁸ Many market-oriented patent owners suffer frustrations as they attempt to educate the government, the judiciary and lenders as to the role their innovations should play to support the economy. Defects in information regarding patent rights and patents as business assets are serious considerations for lenders, but they are also fairly tractable as shall be argued in the chapters that follow. To date, the way most banks and lenders have dealt with patent assets as potential security has been to restrict access to borrowing as IP value is perceived as too uncertain to be covered by a reasonable risk premium; or charge higher interest rates. However, if the information asymmetry problem could be improved, in terms of economic theory,¹⁶⁹ this should have a positive impact on lenders' aversion to patent-backed lending as illustrated in the *Banking on IP Report* (2013) which concluded:

The main obstacle is that IP is generally regarded as being too complex an asset class to finance within the constraints of normal lending margins, mainly due to the difficulties in understanding what it is, how it relates to cash, and were its value can be realised independently of a business. However, this is a perception that is open to challenge, not least because these are the primary assets modern businesses own and use.¹⁷⁰

¹⁶⁸ Barkley Rosser, J. 'A Nobel Prize for Asymmetric Information: The Economic Contributions of George Akerlof, Michael Spence, and Joseph Stiglitz' (2003) Vol 15, Issue 1, *Review of Political Economy*, Taylor and Francis

¹⁶⁹ Ibid

¹⁷⁰ Supra *Banking on IP* [18] p210

This thesis adopts the view that in most western democracies such as the UK, the market system has been most successful when it is supported by government regulation.¹⁷¹ However, within the financial market system lenders are prone to behaviour akin to herd behaviour.¹⁷² Currently, the “lender herd” continues to ration lending against patents and other IP assets because they are not comfortable with those assets as security. Group think¹⁷³ is a natural consequence of human social nature because we cannot predict the future. Predicting the future is of overwhelming importance to present decision-making, so people cling to what has worked in the past when attempting to forecast the future. Lenders have developed a strategy for dealing with uncertainty by adopting the *conventional* view that patents as an asset class are not suitable as security for loans. It is critically important to shift this type of thinking by lenders for two reasons. First, because of the increasing amount of patent asset value that resides in firms. Secondly, because access to finance enables inventors and innovating firms with ideas and inventions, technical ability and opportunity, but no cash - to invest profitably, using the money of others who do not have the ideas, inventions or technical abilities. This mechanism ultimately leads to economic growth and better standards of living. Consequently, it is vital to realign business lending from the industrial age to the modern age of the innovation economy.

Lenders should consider formulating lending strategy with respect to the business growth cycle of innovating SMEs. Funding is an essential building block of economic

¹⁷¹ Stilwell, Frank. *Political Economy: the Contest of Economic Ideas* (2002) First Edition. Oxford University Press, Melbourne, Australia.

¹⁷² Shiller, Robert, J. ‘Human Behaviour and the Efficiency of the Financial System (1999) Vol. 1 Part C Chapter 20, *Handbook of Macroeconomics*, Elsevier; Bannerjee, A. V. ‘A Simple Model of Herd Behaviour’ (1992) 107: 797-817 *Quarterly Journal of Economics*. The “herd mentality” concept was first introduced by German philosopher Friedrich Nietzsche and suggests that (some) people tend to follow what other do without giving it much thought of their own, just like a herd of cows would follow one cow that starts to walk in a certain direction. Herd mentality is much more common and prevalent in society than might appear and plays an important role in business and human interaction.

¹⁷³ Allison, S.T and Messick, D.M. ‘The Group Attribution Error’ (1985) Vol.39, No. 4, *Journal of Experimental Social Psychology* pp 578-589. The biased belief that the characteristics of an individual group member are reflective of the group as a whole, even when information is available that clearly suggests otherwise.

development, yet innovating SMEs find it challenging to secure loans from the retail banks using IP. UK lenders should consider expanding their lending portfolios secured by traditional assets to include patent assets enabling them to diversify risk by spreading and minimising it. This will help to safeguard their position by lowering lending risks in the long term as some portion of their lending portfolio will perform favourably during economic cycles.¹⁷⁴

Fortunately, lenders such as the Clydesdale Bank, Santander and the Silicon Valley Bank UK branch are not following the herd¹⁷⁵ and are actively taking steps as early entrants in the intangibles lending market. The talent of these lenders is to see what others do not, or to see it earlier. They regard patent assets as an alternative asset category, affording the opportunity for greater diversification. This is skill, not luck. It is a skill that is honed via awareness of valuable patent assets, learning about them (education) and practising the skill of lending against patent assets to develop expertise in the field.¹⁷⁶

Turning to the borrower, the first management decision an innovating SME has to make is whether to invest in patenting its invention. This is an economic decision that depends on the impact investing resources in the patent will potentially have on profits. Further, according to the CA 2006, the board of directors now also have a statutory obligation to have regard to promoting the success of the company, which includes the likely consequences of any decision in the long term: s172. According to ministerial statements,

The words ‘have regard to’ mean ‘think about’; they are absolutely not about just ticking boxes. If ‘thinking about’ leads to the conclusion, as we believe it will in

¹⁷⁴Tier, Mark *The Winning Investment Habits of Warren Buffett & George Soros* (2005) St. Martin’s Press, NY, NY, pp296–298

¹⁷⁵ The Silicon Valley Bank opened its first UK branch, offering a full range of services (June 2013)

¹⁷⁶Maubussin, Michael J. *The Success Equation: Untangling Skill and Luck in Business, Sports, and Investing* (2012) Harvard Business Review Press. For further information on Clydesdales Growth Fund see *Banking on IP?* Report (2013) pp135-136, *IP Valuation* Report (2014) p29

many cases, that the proper course is to act positively to achieve the objectives in the clause, that will be what the director's duty is. In other words 'have regard to' means 'give proper consideration to'.¹⁷⁷

The revenue generated by the invention should cover the costs of making a patent application and as well as the renewal costs of maintaining any patent subsequently granted, so that the net profit is positive. This will depend on the success and value of the invention. At this point, the innovating SME has already made a preliminary assessment of the economic value of the patent to the business. Yet while the patent ecosystem is effective in terms of encouraging innovation, it stalls at the decision-making level by external financiers. This is problematic when the UK is a key patent-intensive region in the EU with more than 2,000 UK patents a year being granted in the region during the period 2010-2013.¹⁷⁸ Indeed, there is patent activity across virtually every sector of the UK economy as patentees seek to gain proprietary market advantages. The top ten companies with the most patents granted by the UK IPO in 2013 are unsurprisingly all large companies.¹⁷⁹ However, the more patents issued, the greater both the public's awareness of them and the pressure on innovating SMEs to apply for them. Inventors increasingly realise that neglecting to patent an invention may result in losing it to someone more pro-active, who would demand a royalty for its continued use or production. Every year in the last decade, investment by UK business in intangible assets including patents has outstripped investment in tangible assets by £137 billion to £104

¹⁷⁷ Horrigan, B. *Corporate Social Responsibility in the 21st Century: Debates, Models and Practices Across Government, Law and Business* (2010) Edward Elgar Publishing, p245

¹⁷⁸ UKIPO Facts and Figures 2010 and 2011 Calendar Years, p1; UKIPO Facts and Figures 2012 and 2013 Calendar Years, p4

¹⁷⁹ IBM Corporation, Broadcom Corporation, Baker Hughes Incorporated, Dyson Technology Ltd. Schlumberger Holdings Ltd., GM Global Technology Operations, Inc., Hewlett-Packard Development Company, L.P. General Electric Company, Canon and Rolls-Royce. Source: Facts and figures for 2013-2013 calendar years (2014) UKIPO p9

billion in 2008.¹⁸⁰ This investment in intangibles led to the *UK IP Ministerial Forum on the Economic Value of IP* held in 2009 to further understand the impact of intangibles on the economy. Due to the level of patenting activity, there is a scramble for both public and private funds in a harsh economic climate.¹⁸¹ IP-intensive industries report that little money is available to support innovation, and where it is, it comes with onerous conditions.¹⁸²

Turning our economic analysis to debt finance and innovation, in 2009 the National Endowment for Science, Technology and the Arts (NESTA) studied innovating firms' ease of access to loans in the UK and confirmed that they found it difficult to obtain a bank loan with only a good business plan and no tangible security. The trend is that the UK has declined in terms of access to loans falling from 4th to 5th since 2008 and that the current economic environment with tightening credit conditions adversely impact new businesses set out below in Figure 3.

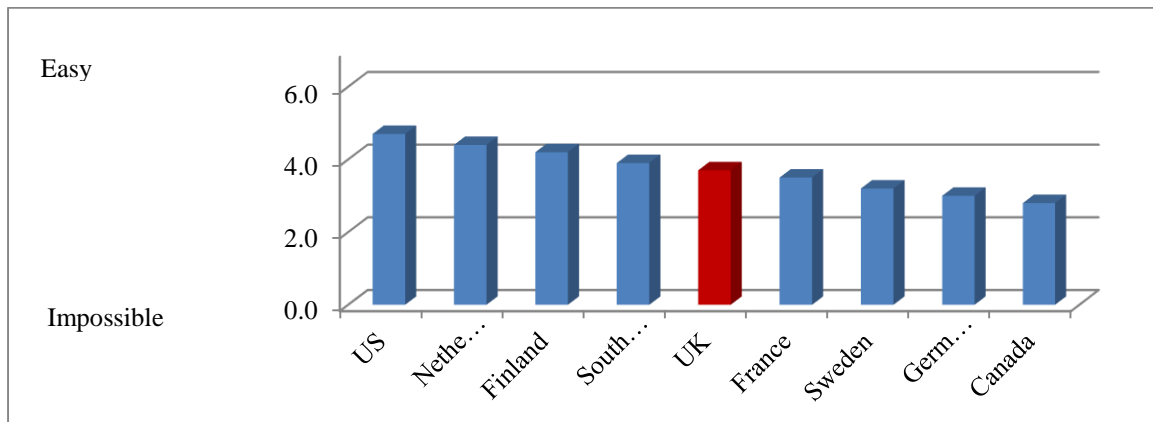
¹⁸⁰ Goodridge, P. et al, *UK Investment in Intangible Assets: Report for NESTA* (2011) NESTA Working Paper No. 14/02, p15

¹⁸¹ Sunjata, D. (4 June 2010) p2

¹⁸² Harvey, F. (4 June 2010) p1

Figure 3 Access to loans

This chart shows the results of a business survey measure of respondents' views on (1) how easy is it to obtain a bank loan in a country with only a good business plan and no security (1 impossible, 7 = easy)

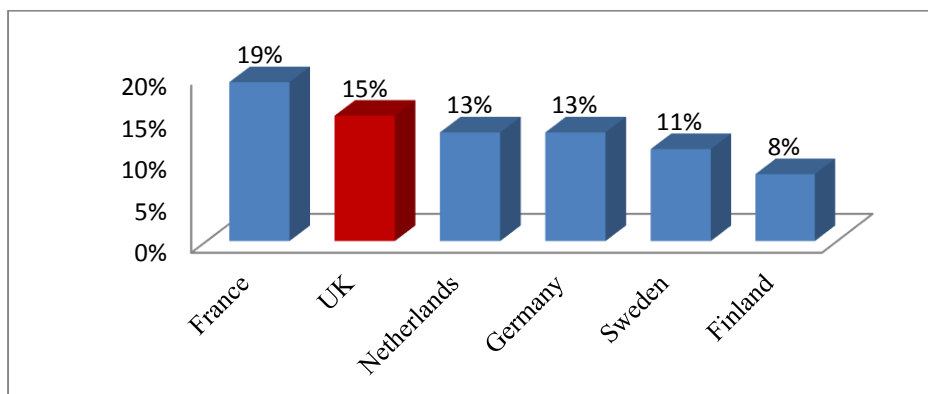


Source: The NESTA Innovation Index 2009, p23

From the standpoint of the SME as a borrower, access to loan finance is the most significant barrier to economic growth.

Figure 4 Companies identifying access to finance as the most pressing problem they face

This chart shows that 15% of UK firms (Eurobarometer survey) report that access to loan finance as their most pressing business development problem.



Source: The NESTA Innovation Index 2009, p23

In its *Innovation Report*, NESTA concluded that:

The UK is a relatively good place to innovate, but has some important short-comings. On the basis of available internationally comparable data ... the UK performed less well on three important indicators: access to finance, demand for innovation (in particular the use of government procurement to encourage innovation), and skills for innovation.¹⁸³

So while the UK has a highly sophisticated finance sector, NESTA's 2009 data and research confirmed that access to credit was restricted and a pressing concern. SMEs were particularly vulnerable as their size prevented them from accessing alternative sources of finance.¹⁸⁴ Commentators and businesses were critical of the lack of willingness on the part of the banking sector to lend to small business generally. BIS has strategically prioritised and committed to improving the interface between innovation SMEs and lenders to assist them to commercialise their inventions.¹⁸⁵ In 2013 BIS reported that over half of SMEs have used finance in the last 3 years. Bank overdrafts, credit cards and a loan from an individual were the most common forms of debt finance used, followed by a bank loan or commercial mortgage or leasing/hire purchase.¹⁸⁶ SMEs that sought finance did so to obtain working capital or for cash flow.¹⁸⁷ The preferred source of finance overall, regardless of reason, was a bank loan or commercial mortgage followed by a bank overdraft and loan/equity from friends and family.¹⁸⁸

¹⁸³ *The Innovation Index: Measuring the UK's Investment in Innovation and the Effects* (2009) p7

¹⁸⁴ Pierrakis, Y. and Collins, L. *Banking on Each Other: Peer-to-Peer Lending to Business: Evidence from the Funding Circle* (April 2013) NESTA, pp3-7

¹⁸⁵ Ibid p21

¹⁸⁶ Small and Medium-Sized Enterprise (SME) Journey towards raising external finance (October 2013) A Report by BMG Research for BIS, Chapter 3

¹⁸⁷ Ibid Chapter 4

¹⁸⁸ Supra [185] Chapter 7

Globally the UK's position is still encouragingly strong in terms of the ease of doing business. In the 2013 World Bank assessment of 183 countries, the UK ranked an encouraging 7th for "ease of doing business"¹⁸⁹ indicating that the UK is in a prime position to lead the development of patent-backed debt finance. The author recommends that UKIPO's Chief Economist elevate economic analysis of the impact of its patent policies and SME business finance policies on patent-backed debt finance, under the umbrella of the UKIPO, BIS and Companies House (which receives innovating SMEs corporate reports). Strategic realignment to evaluate the effects of alternative patent policies on innovative SME debt finance and the relationship between IP and economic development would be beneficial.

2.5 Social impact: A behavioural finance approach

Social factors contribute to the barriers faced by innovative SME who seek to access to patent-backed debt finance. This section explores the interface between innovating SMEs (and their inventors) and lenders. Behavioural finance studies the effects of psychological, social, cognitive and emotional factors on economic decisions.¹⁹⁰ Although psychology has been used to support economic analysis since the early 20th century, it was in the 1960s that cognitive psychology shone a light on how the brain processes information. Psychologists such as Amos Tversky and Daniel Kahneman began to compare their cognitive models of decision-making under risk and uncertainty to economic models of rational behavior.¹⁹¹ Initially we consider the inventor mind set turning to the lender mind set to cogitate their underlying social and cultural values at the point at which the innovating SME applies for debt finance and the lender contemplates a decision to lend.

¹⁸⁹ The UK was outranked by Singapore, Hong Kong, New Zealand, the US, Denmark and Norway. Data compiled by the International Finance Corporation and the World Bank. <http://www.doingbusiness.org/rankings>

¹⁹⁰ Lin, Tom W. C. 'A Behavioral Framework for Securities Risk' (2012) *Seattle Law Review* Vol. 34, p325

¹⁹¹ Kahnemann, D. Slovic, P. and Tversky, A. *Judgment under Uncertainty: Heuristics and Biases* (1982) Cambridge University Press, Cambridge, MA.

Social factors are an important feature of the inventor mind set. Believing the same thing as other people makes life easier. Holding unconventional views can be isolating. As parents will often make great sacrifices for their children, inventors will make sacrifices to see their ideas and inventions thrive. This motivation is partially a form of self-actualisation¹⁹² but is also altruistic in the sense that the invention is a public good that solves a problem experienced beyond the inventor him or herself. Roger Bootle, a modern British economist states:

At the sharp end of the economy, for its real creators and drivers, the entrepreneurs and the inventors, money is seldom the driving force. What drives them is the sheer pleasure of creation, the joy of envisaging, doing and developing something and then working to make it happen. Money is usually no more than a way of keeping score.¹⁹³

In making a credit appraisal, the lender should consider the high degree of personal motivation that inventors within innovating SMEs bring to the table. As for the social motivation of professional lenders, they typically take pride in carrying out their professional duties and want to provide a good service to their customers, while acting in a prudent way to balance making money from their lending activities and protecting the bank's position. Lenders' attitudes and behaviour are enshrined in professional codes of conduct and via laws regulating banking and finance and they risk loss of reputation and risk fines if they fall short of their professional standards. Lenders do not see themselves in an adversarial relationship with their customers until the customer defaults on its loan. What needs to be fostered as between innovating SME borrowers and lenders who can distribute capital is a "team spirit" so that these stakeholders work cooperatively rather than in a dysfunctional manner.

¹⁹² Maslow, A.H. 'A theory of human motivation' (1943) *Psychological Review*, 50(4) 370–96

¹⁹³ Bootle, R. *The Trouble with Markets: Saving Capitalism from Itself* (2009) Nicholas Brealey Publishing, London, p82

As for banks, they are part of the institutional structure of society¹⁹⁴ and are social constructs.¹⁹⁵ How lenders think about patent assets matters and how they behave are social phenomena.¹⁹⁶ The lending environment is part of the financial system and is inherently fragile because it depends on trust. Trust is important because it is based on the ability to predict the future. In the paragraphs that follow, a short introduction to the research on human decision making relevant to lending is presented. Lenders need to trust the innovating SME and have confidence that the loan will be repaid before they will lend.¹⁹⁷ Innovating SMEs also need to acknowledge that gaining a lenders' trust is the key to an affirmative lending decision in their favour. Trust is an elusive element in many business dealings and is a critical aspect of a lending decision, because trust is a feeling. Trust is crucial in building long term success with a lender and vice versa (mutual functional trust). The trust the lender needs to feel lies not only with the borrower but the lender must also have confidence in the patent asset and the patent system which currently are not appreciated in mainstream UK lending.¹⁹⁸ The author submits that lenders suffer from a cognitive bias in relation to patents as a form of intangible personal property capable of securing a loan as explained by an interviewee in the *Banking on IP?* Report:

Our credit team was inclined to turn down anything they didn't understand and which didn't have the sort of assets that were familiar. However, we did manage to turn round a lot of decisions that were initially declined.¹⁹⁹

¹⁹⁴ Stein, H. *Beyond the World Bank Agenda: An Institutional Approach to Development* (2008) University of Chicago Press, p125

¹⁹⁵ Burr, V. *An introduction to social constructionism* (1995) London, UK: Routledge

¹⁹⁶ Social phenomena include all behaviour influences.

¹⁹⁷ Tronnberg, C., Hemlin, S. 'Bankers' lending decision making: a psychological approach' (2012) *Managerial Finance*, Vol. 38 Issue 11, pp1032-1047

¹⁹⁸ Supra *Banking on IP?* [18] p13

¹⁹⁹ Supra *Banking on IP?* [18] p67

In other words, they do not see patents as a functioning asset class. This cognitive bias includes being risk averse with respect to patent assets.²⁰⁰ Trust is a form of faith in that the lender also has to believe in what the innovation SME is doing and their plans for the future. Lenders need relevant, useful and reliable qualitative information about the SME's patent strategy for generating future value from those assets. For example, lenders may trust the SME as a business, but not have faith in the value or quality of the patent(s) as a business asset. Alternatively, the lender may believe in the value and quality of the patent asset, but not trust the SME borrower (based on past lending experience or credit history).

A common misconception is the view that numeric (quantitative) accounting information is more trustworthy than other qualitative formats²⁰¹ because it is less vulnerable to “spin”. It will be argued in the chapters to follow that improving communication of the “patent value story” to lenders supported by corporate narrative patent information and strategy disclosure within the company's annual Strategic Report filed with Companies House is needed to garner lenders' trust. Corporate annual and quarterly narrative reports are the most credible and compelling medium for telling a company's “IP value story”. They are also corporate reporting documents with which lenders are familiar. Further, disclosure made within the company law framework substantially increases the legitimacy and authority of the information disclosed, which comforts lenders.

In essence, lenders need to have a high level of trust in borrowers because they are contemplating lending money and want to know it is safe and will be repaid. Trusting a borrower is a risk. The lender will typically examine the possibility of the SME defaulting on the loan within a 1-2 year time frame, taking into consideration current information about the borrower.²⁰² Defaulting on a loan is trust lost and lenders will be reluctant to trust for a

²⁰⁰Supra Kahnemann, [190]

²⁰¹ McLeod, S. A. *Qualitative Quantitative* (2008). Qualitative research gathers information that is not in numerical form and may require a degree of expert knowledge to interpret.

²⁰² Supra Tronnberg, [196] p138

period of time. If a lender loses faith in a borrowers' ability to repay debt, even though it may not be the borrowers fault, the lender's trust evaporates and the lender does not really care what caused the default. When trust is present, banks will lend because lending is a core business. Relevant, useful and reliable information about the proposed patent assets to secure a loan is economically sound and will increase trust.

In a social context, a lenders' trust initially is tentative and must be earned – this is the case for any borrower.²⁰³ Lenders use different methods to assess the risk of default. They use either quantitative methods (such a financial statement lending) and credit scoring or more qualitative methods such as relationship lending to assess the borrower and their business strategy.²⁰⁴ Quantitative credit appraisal methods involving numbers are potentially problematic to the extent that they give the illusion of providing more truth than they actually do. They favour what is easiest to measure, not necessarily what is the most important.²⁰⁵ They can easily be used to dress up failure as success.²⁰⁶ A combination of quantitative and qualitative methods would complement each other and assist to reduce lending risk assisting experienced loan officers undertake a more thorough evaluation before making a lending decision.²⁰⁷ It is fair that lenders are sceptical about patent assets because they generally do not have a great deal of experience with them as an asset class with collateral potential. Both the amount of financial information and the type of information influence lending decisions.²⁰⁸ In traditional banking, lending decision-making is guided by the “5Cs of

²⁰³ Deszo, L. and Loewenstein, G. 'Lenders' blind trust and borrowers' blind spots: A descriptive investigation of personal loans' (2012) *Journal of Economic Psychology*, Vol. 33 Issue 5 pp996-1011

²⁰⁴ Berger, A.N. and Udell, G.F. 'A more conceptual framework for SME finance' (2006) *Journal of Banking & Finance*, Vol. 30 No. 11, pp2945-66

²⁰⁵ Bornstein, D. *How to Change the World: Social Entrepreneurs and the Power of New Ideas* (20 Sept 2007) Oxford University Press USA, 2nd edition.

²⁰⁶ Ruddick, G. 'Suspended Tesco executive to return as Dave Lewis overhauls team' (1 December 2014) *The Telegraph*. The well-known UK supermarket Tesco plc financial statement scandal uncovered a profit black hole amounting to £263m which is presently being investigated by the Serious Fraud Office.

²⁰⁷ Supra Tronnberg, [196] p1040

²⁰⁸ Biggs, S.F., Bedard, J.C., Gaber, B.G. and Linsmeier, T.J. 'The effects of task size and similarity on the decision behaviour of bank loan officers' (1985) *Management Science*, Vol. 31 No. 8, pp970-86

lending” that apply to both transactional and relationship lending. The 5Cs, which should be evaluated equally, are:

- (1) character (i.e. evaluation of the prospective borrower’s personal characteristics)
- (2) capital (i.e. the borrower’s net worth),
- (3) collateral (i.e. the borrower’s pledge of property to secure the debt)
- (4) capacity (i.e. the borrower’s ability to service the debt out of current income); and
- (5) conditions (i.e. present market conditions for both the borrower and the general economy).²⁰⁹

However, according to Hedelin and Sjo’berg it appears that the borrower’s personal characteristics are over-emphasised in lending-decision making.²¹⁰ The author considers that conversely, it is likely that the borrower’s collateral is under-emphasised if it comprises patents with which lending officers have little expertise. It may be they neglect to take into account important patent information as it does not usually form part of any common documentation used to approve loans.

Humans dislike change and this dislike goes further than fear of material loss. A solution for patent-backed lending is for the innovating SME to seek small patent-backed loans initially. Lenders learn from experience and may draw conclusions from earlier situations and can match these with present situations.²¹¹ As the lender becomes more comfortable, it will consider increasing the amount of funds advanced as with credit card limits, which are only increased once the borrower has shown discipline by meeting the

²⁰⁹ Thomas, L.C. ‘A survey of credit and behavioural scoring: forecasting financial risk of lending to consumers’(2000) *International Journal of Forecasting*, Vol. 16 No. 2, pp149-72

²¹⁰ Hedelin, E. and Sjo’berg, L. ‘Risk Assessments – Loan Officers’ Assessment of New Entrepreneurs’ Personal Characteristics) (1993) NUTEK, Stockholm

²¹¹ Supra Tronnberg, [196] p1039

monthly repayments and develops a positive credit history. Lenders test borrowers this way because they want to feel safe, breeding confidence in future favourable lending decisions.

Another solution is for innovating SMEs to approach small banks that form closer relationships with their client-borrower, relying more heavily on traditional relationship lending, qualitative lending risk assessment and take greater risks.²¹² In *How to Change the World* concerning social entrepreneurs and the Ashoka Foundation, Bornstein states:

...funders should remain cautious when embracing numerical assessments. The quest for quantifiable social returns or outcomes has become an obsession in a sector that envies the efficiency of business capital markets. Given this obsession, it is important to remember that a number has an unfortunate tendency to supersede other kinds of knowing. The human mind is a miracle of subtlety: It can assimilate thousands of pieces of information – impressions, experiences, intuition – and produce wonderfully nuanced decisions.²¹³

The positive benefits of relationship lending were experienced by Sir James Dyson, inventor, billionaire engineer, industrial designer, founder of the Dyson company and knight of the realm, who experienced cash flow pressures with his fledgling business:

Dyson vacuum cleaners would not exist were it not for Mike Page, my bank manager, who personally lobbied an initially reluctant Lloyds Bank to loan me the £600,000 I needed for tooling – the only way to start out on my own.²¹⁴

²¹² Supra Berger [203] pp191-222

²¹³ Supra Bornstein [204]

²¹⁴ Dyson, J. *Ingenious Britain Making the UK the Leading High Tech Exporter in Europe: A Report by James Dyson* (March 2010) Commissioned by the UK Conservative Party, p42

Mr Page possibly used an intuitive approach²¹⁵ and rated Dyson's managerial and business experience as an important factor in the credit assessment.²¹⁶ Nevertheless, the status quo is that lenders are averse to patent-backed lending and this is a barrier to overcome. In the author's view, the barrier is not the problem, rather it is a symptom of the problem and work needs to be done to lower the barriers. Lenders currently trust in tangible assets, intangible equity assets (shares) and all kinds of other tricky, risky and complex financial products (derivatives and hedge funds etc.). Nobel prize winning Grameen Bank has even pioneered and popularised a methodology for extending small collateral-free loans for self-employment to some of the world's poorest people which has had an enormous impact.²¹⁷ If it is possible to make cost-efficient loans to borrowers with no security at all, surely it should be feasible to make loans to innovating SMEs against patents that have an existing and potential future value?

What lenders and banking regulators are really saying to patent owners is "we trust borrowers who own other classes of asset more". But is this trust in other assets classes misplaced and are patent assets really more risky? Banks perceive less risk in lending against land, shares and other financial products and even to the poor, but the global financial crisis 2007-2012²¹⁸ tells a different story. Traditional forms of security are riskier than commercial lenders originally perceived. In time, lenders' trust in patent assets will develop and the patent asset class will mature and foster a solid reputation (a past credit history).

Gaining the lenders' trust does not mean innovating SMEs will successfully commercialise innovations, however it does provide the funding to move forward at a

²¹⁵ Khatri, N. and Ng, H.A. 'The role of intuition in strategic decision making' (2000) *Human Relations*, Vol. 53 No.57, pp57-86

²¹⁶ Supra Tronnberg, [196] p1040

²¹⁷ Microfinance is an example of systemic change in the field of finance to solve a problem. Academic Muhammed Yunus challenged banking theory showing how to systematically extend security-free loans on a cost effective basis to poor villagers on a large scale. The Grameen Bank has 7.1m borrowers in 77,000 villages in India. Microfinance is now a global movement and has been taken up by banking giants like Citigroup. See www.grameen.com

²¹⁸ Supra [24]

significantly increased rate than would otherwise be the case. A favourable lending decision means that over the term of the loan, the innovating SME will deliver more detailed information about its business strategy, positively impacting on the lender/borrower relationship. This takes place through the bank's loan risk monitoring procedures under the loan documentation applicable to all loans. A dynamic risk monitoring system provides an intelligence framework for collecting real-time information by scanning for events relevant to loan quality, as opposed to a creditor scoring system which relies on historical data about the borrower to predict loan quality.²¹⁹ Loan monitoring systems directly benefit the bank's shareholders by enhancing the value of the bank's loan portfolio.²²⁰ More importantly for the development of patent-backed lending, banks have increased incentives to hold "risky" loans when they can monitor such "riskier" loans in real time.²²¹ This is where the "missing" narrative corporate disclosure regarding patent information and strategy will be felt in the long term, by improving the business relationship. The challenge for the innovating SME, as a trusted borrower, is to provide real time information that is accurate, visible and has value to the lender, breeding confidence.

Trust is the highest level of human and social interaction and it is also the most complex.²²² The simplicity of trust is that if lenders do not have trust in patent assets, it is because that trust has yet to be earned. Lenders must be confident that the innovating SME trusted to repay the loan will do what is expected. It is important to analyse the patent ecosystem to understand why lenders do not generally trust in patent assets and then to work to lower the barriers to gain that trust.²²³ In economic terms, trust is viewed as an economic

²¹⁹ Instefjord, N. and Nakata, H. 'Loan Monitoring and Bank Risk' (17 April 2014) First Draft, p2

²²⁰ Ibid p4

²²¹ Supra Instefjord [218] pp6-7

²²² Mayer, R.C., Davis J.H., Schoorman F.D. An integrative model of organizational trust (1995) 20 (3) *Academy of Management Review*, pp709-734. Definitions of trust typically refer to a situation whereby one party (trustor) is willing to rely on the actions of another party (trustee) and the situation is directed to the future.

²²³ Kosfeld, M., Heinrichs M., Zak, P. J., Fischbacher, U., and Fehr, E. Oxytocin increases trust in humans" (2005) *Nature* 435, 2005, 673-676. It can be demonstrated that humans have a natural disposition to trust and to judge trustworthiness that can be traced to the neurobiological structure and activity of a human brain.

lubricant, reducing the cost of transactions between parties, enabling new forms of cooperation and generally furthering business activities and prosperity.²²⁴ Without trust in patents as an asset class, lenders are paralysed into inaction. The *Banking on IP?*²²⁵ report confirmed that the role of IP in facilitating business finance was not appreciated in mainstream UK lending and that IP was therefore a missed opportunity.

A problem facing lenders is that borrowers can be dishonest and provide less than accurate information. Fraud is a risk with respect to intangibles as with any asset. There is risk with regard to genuine uncertainty as to the future. Dishonest or misleading patent valuations may involve collusion with accountants, solicitors, patent attorneys and other professional intermediaries who inflate the value of the asset. This is why making patent information and strategy disclosure in the Strategic Report of an SME's annual return is critically important. It is argued that if lenders are in a position to triangulate²²⁶ quantitative, qualitative and strategic IP information this promotes validity, reliability and accuracy - increasing predictability and decreasing the volatility of quantitative IP asset values. This should enhance lenders' trust in patent as an asset class for use as security. The information must meet the "true and fair" standard set by corporate disclosure regulations. Having reliable information will facilitate lenders' due diligence. Further, having both types of information will also assist the lender to dynamically monitor the loan by triangulating the information with the borrowers current account activity. Thus, to enhance patent-backed lending it would be beneficial for lenders to introduce effective dynamic monitoring systems to align the banks' and banking regulator's interests.²²⁷

²²⁴ Morgan, Robert; Hunt, S 'The Commitment-Trust Theory of Relationship Marketing' (July 1994) *The Journal of Marketing* 58 (3): 20-38

²²⁵ *Supra Banking on IP?* [18] p15

²²⁶ Triangulation is a powerful technique that facilitates validation of data through cross verification from two or more sources applying several methodologies to the same phenomenon.

²²⁷ *Supra Instefjord* [218] p6

Finally, another way for innovating SMEs to gain a lenders' trust is to demonstrate competency, superior skills and passion. The patents themselves demonstrate a degree of novelty and inventive step over the state of the art, in other words, over the competition. Innovating SMEs need to show lenders the value by showing the problem it solves, not just how the patented invention works – this is part of the “Patent Value Story”. Patents granted in countries with a thorough system of examination carried out by highly qualified patent examiners, demonstrate a high degree of validity. Winning prizes or professional accolades, writing publications, speaking at conferences and being perceived as an authority on the subject also demonstrates superior skills and builds a valuable reputation. Thus, patent-backed debt finance can be thought of as a mixture of applied economics and human nature. Lenders cannot trust in what they do not understand, therefore the UKIPO agenda to raise awareness and understanding of IP and IP finance methods is the right approach. Measures to enhance the interface between patent owner borrower and lender will be addressed throughout the thesis. Innovative SMEs will struggle to thrive and grow without access to debt finance if all lenders continue think and behave the same way, treating patents and other IP assets as having little or no value for security purposes.

In 2010 the UK's Conservative Party invited James Dyson to help them reawaken Britain's innate inventiveness and creativity to generate and export more technology. This resulted in Dyson's *Ingenious Britain: making the UK the leading high tech exporter in Europe* report²²⁸ which recommended the UK government tackle the issue of “Financing high tech start-ups”.²²⁹ Dyson's report identifies that as the vast majority of high tech innovating SMEs rely on debt financing for growth it is vital to examine better routes to access same as this will have a high impact on the domestic economy.²³⁰ The report recommends the

²²⁸ Dyson, J. *Ingenious Britain Making the UK the Leading High Tech Exporter in Europe: A Report by James Dyson* (March 2010) Commissioned by the UK Conservative Party, foreword.

²²⁹ Ibid

²³⁰ Supra Dyson [227] pp46-47

government address the apparent unwillingness of banks to lend to small businesses:

Clearing banks²³¹ have a unique understanding of small businesses and have the infrastructure to monitor small debt financing. The process of obtaining a clearing bank loan is simpler and more easily understood by fledgling start-ups. A loan guarantee scheme similar to the National Loan Guarantee Scheme to stimulate small business lending, especially to those exploring new technology, should also be explored.²³²

Dyson's report reiterates the need to improve access to debt finance to assist the UK maintain and improve its status as a nation at the forefront of technologies of the future.

2.6 Technology issues that affect the patent ecosystem

Emerging technologies underpin the creation of a sustainable and resilient future for the UK and are at the heart of the inventive patentable subject matter of the future. This section considers the external technology issues that affect the patent ecosystem.

2.6.1 Emerging technologies

The *Summit on the Global Agenda* is organised annually by the World Economic Forum's (WEF) Global Agenda Council on Emerging Technologies. It is the world's largest global brainstorming event, assembling thought leaders comprising eight expert groups from business, academia, government and civil society to advance knowledge and jointly explore

²³¹ In the UK the five largest clearing banks (institutions which clear bankers' cheques) in England and Wales were Barclays, HSBC, Lloyds Banking Group and Natwest.

²³² Supra Dyson [227] p42

critical issues shaping the world. In 2011, the Summit determined the following technology trends would make the greatest impact on the world in the near future:

- Informatics and adding value to information;
- Synthetic biology and metabolic engineering;
- The green revolution – technologies for increasing food and biomass;
- Nano-scale design of materials;
- Use of carbon dioxide as a resource;
- Wireless power;
- Personalised medicine, nutrition and disease prevention; and
- Enhanced education technology.²³³

However, without appropriate systems and capabilities to develop and commercialise inventions, their safe and successful development is not guaranteed. The UKIPO will need to ensure its human resources plan enables it to recruit suitable and sufficient patent examiners, who have expertise in the emerging technology fields identified above.

2.6.2 Patent application examination backlogs

Technological pressures are also at work in the patent system due to the high level of patent applications. WIPO reported that in 2011 global patent applications reached the 2 million mark evidencing almost constant growth spanning more than two decades.²³⁴ In the UK and other patent rich jurisdictions, this is leading to problems of patent office backlogs and the emergence of so called “patent thickets”, which obstruct entry to some markets and

²³³ Global Agenda on Emerging Technologies blog at <http://forumblog.org/2012/02/the-2012-top-10-emerging-technologies/>

²³⁴ ‘To hack or not to hack? A new report on patent thickets’ (22 August 2013) UKIPO Facto blog at <http://www.ipo.gov.uk/blogs/ipofacto/2013/08/22/to-hack-or-not-to-hack-a-new-report-on-patent-thickets/>

so impede innovation. A “patent thicket” is a strategy whereby a patent owner develops a thick, dense collection of overlapping patent rights which means that innovators need to license multiple patents to use the technology. From a strategic point of view, patent thickets are also used to defend against third party competition who might otherwise design around a single patent.²³⁵ This is normal according to Sir Robin Jacob²³⁶ stating:

...every patentee of a major invention is likely to come up with improvements and alleged improvements to his invention...it is in the nature of the patent system itself that [patent thickets] should happen and has always happened.²³⁷

The *Hargreaves Review* took the view that patent thickets could reduce technological development and innovation. It is important the UK continues to engage in international cooperation to address the backlogs and thickets.²³⁸ The UKIPO published *Patent Thickets – an overview*²³⁹ and *A Study of Patent Thickets*²⁴⁰ to gain a better understanding of:

- (1) whether thickets deter new competitors, especially innovating SMES, from entering a field of technology; and
- (2) the effect of pending patents have as a barrier to enter a technology area and their relationship with patent thickets.

The latter concluded that the growth of patent thickets in the European patent system

²³⁵ Rubinfeld, D. and Maness, R. ‘The Strategic Use of Patents: Implication for Antitrust’ (2005) Edward Elgar, pp85–102

²³⁶ Formerly Lord Justice Jacob of the Court of Appeal, admitted to the IP Hall of Fame in 2006.

²³⁷ Jacob, R. ‘Patents and Pharmaceuticals’ (29 November 2008) Paper given at the Presentation of the Directorate-General of Competition’s *Preliminary Report of the Pharma-sector Inquiry*

²³⁸ Supra Hargreaves [11]

²³⁹ *Patent Thickets – An Overview* (25 November 2011) UKIPO Informatics Team

²⁴⁰ Supra Hall [137]

negatively impacts on innovating SME entry into certain fields of technology, coupled with a “lack of resources and misaligned incentives in patent offices faced with a flood of patent applications”.²⁴¹ How to reduce patent pendency and uncertainty in the patent ecosystem is an administrative issue of key concern. Over the past two decades, the number of UK patent applications filed annually has mostly grown in an upward trajectory. However, the volume of patent applications outpaces the UKIPO’s capacity to examine them. As a result, a substantial backlog of unprocessed patent applications has accumulated resulting in longer periods of patent pendency. This problem is affecting patent offices worldwide.

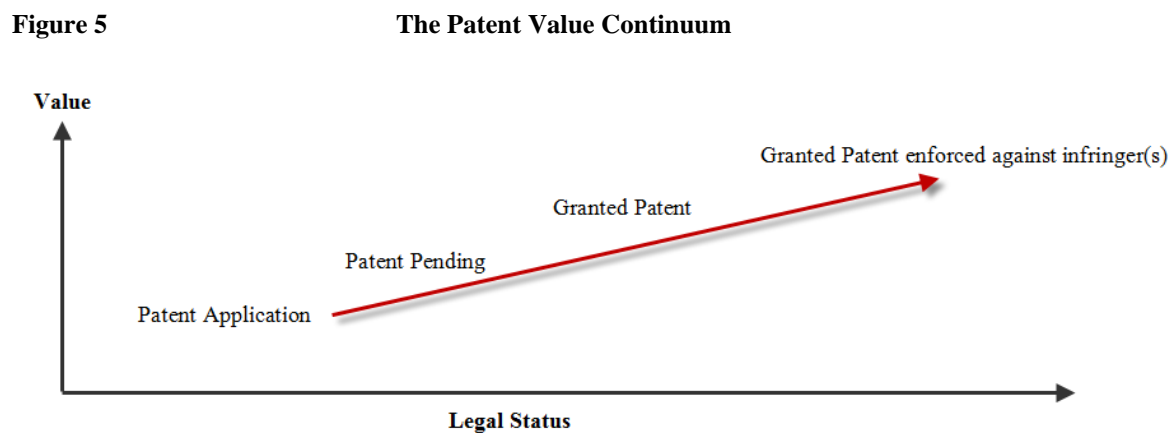
Patent applications are less valuable security than granted patents. Backlogs in processing and examining patent applications cause delays in patents being granted, together with the rights afforded by granted patents (which in turn increases their economic value). Delays in processing patent applications also impedes new products and processes from being commercialised, as the incentive to create and innovate is reduced.

Lenders are reluctant to lend against new technologies that are not protected by a granted patent (the Singaporean patent finance initiative discussed in Chapter 1 echoes this) and neither can patent owners take legal action for infringement until their patent is granted. The expression “patent pending” or “patent applied for” are notices that inventors are entitled to use to indicate that they have filed a patent application, but the application has not yet been granted. This puts potential infringers on notice that they may be liable for damages (including damages back-dated to the priority date of the patent) as well as other remedies available under the PA 1977. Lengthy periods of patent pendency also lead to greater uncertainty about the potential validity of the inventions and whether they will in fact ever be patent-protected.

One legal issue arising is that the claims which define the patent monopoly are not

²⁴¹ Supra Hall [137] p3

available to the public, nor can they be searched until published. This is the period from the priority date until publication date of the patent, part of the period of “pendency”. The content of the patent claims therefore remains confidential as between the patent applicant and the UKIPO and is not able to be searched, creating a “black box” of claims. Thus, later patent applicants may not be aware of the earlier confidential claims and their own patent application may fail for lack of novelty or worse, they risk infringing the pending patents. The greater the patent backlog, the greater the risk for patent applicants. This creates uncertainty regarding the patent asset, lowering its value as an asset to secure lending. Simply put, longer pendency periods reduce the value of the patent. Although pending patents cannot be enforced, they still have value, although not as much as either a granted patent or a granted patent that has been successfully challenged and held to be valid. Figure 5 below depicts the patent value continuum.



The increasing complexity of technology and volume of prior art that needs to be examined is making the role of patent examiners more difficult. However, if the average period of patent pendency remains constant, the UKIPO backlog will continue to grow as

patent applications grow. Further, if the patent pendency periods increase, then the system becomes even more backlogged. The EPO estimates that it will take over 4 years to clear its patent backlog. A recent economic study entitled, *Patent Backlogs and a System of Mutual Recognition*²⁴² made two important conclusions relevant to this thesis. First, backlogs reduce the effectiveness of the patent system by creating costs for the applicant. Costs arise because any uncertainty about validity complicates planning and formulating business strategy, investment decisions and access to funding. Secondly, backlogs impact on patent quality. Uncertainty over the scope of patent quality deters lenders as a patent pending asset has less value than a granted patent. If the backlog stretches the UKIPO's resources and patent quality decreases, more applicants are encouraged to "try their luck" by making low quality patent applications. This predictably means patent litigation will increase.²⁴³

The UKIPO recognises this operational challenge stating that "it is playing an active role in encouraging international cooperation between IP offices through work-sharing to reduce backlogs".²⁴⁴ This is sensible as it is estimated that approximately one third of patent applications worldwide are duplicate applications. A mutual recognition system will allow the UKIPO to reduce the time it spends examining duplicate applications also being reviewed by foreign patent examiners, with a knock-on effect on the backlog. However, even with work-sharing programs, without sufficient resources and suitably qualified and experienced patent examiners, this will remain a challenge for the foreseeable future.

For the reasons set out above, it is important to ensure that the UKIPO is adequately funded to train and employ patent examiners to overcome the UK's patent backlog and reduce pendency times in the interest of further developing innovative SME access to patent-backed lending.

²⁴² *Patent Backlogs and a System of Mutual Recognition* (2010) Prepared by London Economics for the UK Intellectual Property Office

²⁴³ Ibid p14

²⁴⁴ Supra [241] p14

2.6.3 Horizon 2020: The EU International Strategy for Research and Innovation

The latest financial development to impact on the patent landscape is the *Horizon 2020*, the *EU Framework Programme for Research and Innovation*.²⁴⁵ *Horizon 2020* is the public funding financial instrument that implements the “Innovation Union”, an initiative aimed at positioning Europe as top global competitor in terms of research and innovation as well as to creating new economic growth and jobs within the EU. The *Horizon 2020* programme will proceed from 2014 to 2020 with a massive €80 billion budget. The major advantage for innovating SMEs is that *Horizon 2020* simplifies the availability of public funding through the use of a single set of rules. According to the European Commission, the proposed support for research and innovation under *Horizon 2020* will:

- strengthen the EU’s position in science with a dedicated budget of € 24 598 million, thereby providing a boost to top-level research in Europe, including an increase in funding of 77% for the very successful European Research Council;
- strengthen industrial leadership in innovation € 17,938 million via major investment in key technologies, greater access to capital and support for SMEs;
- provide € 31 748 million to help address major concerns shared by all Europeans such as climate change, developing sustainable transport and mobility, making renewable energy more affordable, ensuring food safety and security, or coping with the challenge of an ageing population.²⁴⁶

It is envisaged that a significant percentage of the budget will be allocating to SMEs. *Horizon 2020* will be complemented through additional measures to advance the European

²⁴⁵ http://ec.europa.eu/research/horizon2020/index_en.cfm

²⁴⁶ http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020

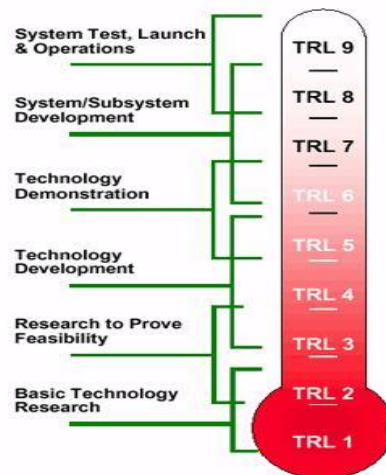
Research Area by breaking down barriers to develop a unified EU market for knowledge, research and innovation. This market-driven strategic approach to enhance greater access to public capital is a positive development providing UK-based innovating SMEs with a tremendous opportunity to access funds to support innovation. The *Horizon2020 SME Instrument* is an entirely new line of EU funding to support innovating SMEs with high potential and high risk R&D projects by providing direct financial support and indirect support to increase their innovation capacity. Phase 1 requires an initial business proposal and if chosen, will receive €50,000 funding and business coaching. However, all projects must be at Technology Readiness Level 6 (TRL 6) or more.²⁴⁷ TRL 6 requires a system/subsystem model or prototype demonstration in a relevant environment.

2.6.4 The TRL System

The TRL system is a well-established method of estimating the maturity of critical technology elements on a scale of 1 to 9 with 9 being the most mature technology. It was originally developed by the US National Aeronautics and Space Agency (NASA) in the 1980s. See figure 6 below.

²⁴⁷ 'UK SMEs earmarked for EU grants to help them innovate' (27 July 2014) EC

Figure 6 NASA's Technology Readiness Levels



Source: NASA public domain

The use of TRLs enables consistent uniform discussions of technical maturity across different types of technology. Although common in the R&D and public finance field, it is less well known in private finance and banking and is also used in the European Commission, the European Space Agency (ESA), NASA and the Canadian Innovation and Commercialization Program. The latter provides financial assistance by awarding contracts to entrepreneurs with pre-commercial innovations, provided the innovation is between TRL 7 and 9. The TRL system could be used by innovating SMEs (see the model in Chapter 7) and by lenders to assess patent-backed loan applications.

In summary, changes in the technological environment have a direct impact on innovating SMEs and the UK's patent system. In addition to reducing patent examination backlogs, patent pendency and dealing with patent thickets, it is crucial for UKIPO and BIS to work with innovating SMEs in the interim to educate them as to all available methods of public R&D funding for potentially patentable inventions, until such time as commercial lending evolves to the point where banks have patent-backed lending policies in place and are ready and willing to make patent-backed loans. There is also the opportunity for lenders to

learn about the TRL system, an existing tool to assess funding risks.

2.7 The legal factor: enforcing patent rights

It is commonly said that patent rights are only as valuable as the ability to enforce them. However, patent infringements are often difficult to identify, involve considerable expense to gather evidence of infringement and arduous to litigate. Patent disputes present an enormous business risk for both the innovating SME and the lender. At stake is the ability to sell, market share, damages and costs orders, possible future licensing royalties and the validity and thus the commercial value of the patent itself. Prudent management of patent assets is essential for the sustainability of the innovating SME, but knowing how to proactively enforce patent rights is far from intuitive. The ability to enforce patent rights is a key legal factor that impacts on the development of patent-backed lending.

The *Patents Act 1977* (as amended), the *Patents Act 2004*, the *Patent Rules 2007* and the *Intellectual Property Act 2014* represent the modern governing UK national legislation that create the patent law framework. These derive from a hybrid of national, European and international agreements.²⁴⁸ As a minimum, the UK is required to ensure its patent rights enforcement system complies with the Agreement on Trade-Related Aspects of IP (TRIPS)²⁴⁹ which provides:

Article 41

Members shall ensure that enforcement procedures as specified in this Part I are available under their law so as to permit effective action against any act of infringement of IP rights covered by this Agreement, including expeditious remedies to prevent infringements and remedies which constitute a deterrent to further

²⁴⁸ Such as the 1994 TRIPS Agreement, part of the WTO founding treaty.

²⁴⁹ An international agreement administered by the WTO that sets down minimum standards for many forms of IP regulation as applied to nationals of other WTO Members.

infringements. These procedures shall be applied in such a manner as to avoid the creation of barriers to legitimate trade and to provide for safeguards against their abuse.

Procedures concerning the enforcement of IP rights shall be fair and equitable. They shall not be unnecessarily complicated or costly, or entail unreasonable time-limits or unwarranted delays.

Enforcing patent rights is a major concern for innovating SMEs and lenders. In 2000, the EU study entitled, *Enforcing Small Firms Patent Rights*²⁵⁰ found that every single valuable EU invention that an innovating SME held had been copied at least once (in every case at least once) yet not one EU innovating SME had been able to successfully enforce their patent. Fortunately, recent legal reforms level the playing field for innovating SMEs who wish to take enforcement action in the specialist IP Enterprise Court (IPEC), the High Court and the new Unified Patent Court (UPC).

2.7.1 IP Enterprise Court (IPEC) and the High Court, Chancery Division

As of 1 October 2013, the Patents County Court (PCC) was reformulated as a specialist list of the High Court as the IP Enterprise Court (IPEC).²⁵¹ Thus, currently in the legal system of the Courts of England and Wales, IPEC (previously the Patents County Court) in London is an alternative venue to the High Court for bringing legal actions involving IP matters including patent rights.²⁵² The IPEC provides access to justice for litigants who are unable to afford the costs of litigation in the High Court.

²⁵⁰ Kingston, W. (2000) Publications Office of the Commission of the European Communities, Luxembourg

²⁵¹ Civil Procedure (Amendment No 7) Rules 2013 (SI 2013/1974)

²⁵² Civil Procedure Rules 63.1 A The CPR are designed to improve access to justice by making legal proceedings cheaper, quicker, and easier to understand for non-lawyers.

Revitalised rules of procedure require more detailed particulars of claim,²⁵³ no disclosure, no examination-in-chief of expert witness and tight control by the Judge of the issues that go to trial. Financial ceilings were introduced to both the damages (at £500,000) and the legal costs (at £50,000, with an additional cap per stage) recoverable. Trials should last no more than two days. IPEC judges have specialist IP and patent knowledge and can order the full range of IP remedies including financial compensation/damages, an account of profits, final injunction to prevent future infringements, search and seizure and freezing assets. Although the IPEC is now part of the High Court, patent and trade mark attorneys retain their rights of audience and litigation.²⁵⁴

Within IPEC there are two systems: the multi-track described above and the small claims track for claims of less than £10,000 with restrictions on costs orders, however, the latter is not appropriate for patent claims.

The creation of IPEC is a positive development supporting innovating SME access justice in respect of their patent rights. IPEC deals with smaller, less complex, lower value actions with procedures specifically designed for these type of cases, aimed at ensuring IP owners are not deterred from enforcing their patents due to potential litigation costs. Longer, more complex, higher value actions, as is often the case with patent litigation, are heard in the High Court. IPEC aims to strike a balance between swift, low cost, streamlined litigation and while ensuring a proper investigation of the claim in an informal courtroom environment.

Lenders should take comfort in the high quality of the specialist IP courts and judges available in the UK to enforce patent rights and resolve disputes. Further, the UK's EU membership has had a huge impact, in particular the PA 1977 which harmonised UK patent law with the *European Patent Convention* (EPC).²⁵⁵ Consequently, there is now a fusion of

²⁵³ The document that sets out the claimant's case.

²⁵⁴ *Rights to Conduct Litigation and Rights of Audience and Other Reserved Legal Activities Certification Rules 2012*, IP Regulation Board

²⁵⁵ The EPC came into force in 1974.

UK and European patent law and practice which has been largely positive in practical terms, resulting in a solid degree of legal certainty in the patent legal framework.

2.7.2 The European Unified Patent Court (UPC)

Although the European Patent Office (EPO) provides single patent grant procedures, the ability to enforce European patents is in the process of change with the advent of the UPC. Consequently, the UK's Intellectual Property Act 2014 streamlined parts of existing laws, including improvements to the patent law regime. The Act provided the foundation for the UK to sign the UPC Agreement and lays out the groundwork for introducing the UPC.

“Patent prosecution” refers to the interaction between patent applicants, their representatives and the relevant patent granting office and is divided into: (1) pre-grant prosecution which involves negotiating with the patent office for the patent to be granted; and (2) post-grant prosecution which relates to post-grant amendments to the patent or responding to opposition to the patent by third parties. This is distinct from “patent litigation” which is legal action taken to enforce the patent monopoly against an infringing third party. The *Agreement on the UPC* signed by 24 EU Member States on 19 February 2013 creates a specialised patent court with exclusive jurisdiction for litigation relating to European patents and European patents with unitary effect. According to the EPO, the UPC was needed to address the problem of the high legal costs that ensue when patent litigation has to be undertaken in two or more national courts, with the risk of diverging decisions and lack of legal certainty. Forum shopping also occurred as the parties sought to take advantage of differences between national courts' interpretation of harmonised European patent law and procedure.²⁵⁶ The new court system paves the way for the implementation of a unitary patent system in Europe. EPO President Benoît Batistelli stated,

²⁵⁶ <http://www.epo.org/law-practice/unitary/patent-court.html>

The signing of the UPC agreement is a decisive step towards the long-awaited introduction of a truly supranational patent system in Europe. Following the endorsement of the unitary patent package by the European Parliament and Council in December 2012, the creation of a European court specialised in patent matters will be a tremendous boost for the completion of the European patent system.²⁵⁷

This is the most dramatic change in the patent landscape across most of Europe in the last 30 years. A unified patent system should reduce the cost of acquiring patents in Europe. It will be similar to the existing system in that one can apply centrally to the EPO in Munich, but rather than choosing to acquire a bundle of single national patent monopolies, the applicant will acquire a single monopoly covering the relevant EU member states. Existing UK national patent rights will not change.

For the patent owner, the new system means that in the near future, when filing a UK patent application, the applicant will obtain a single European patent that will stand or fall across the whole of Europe. There will be a transition period for the first 7 years during which the applicant can choose to opt-in its existing portfolio, or not opt-in for strategic reasons e.g. uncertainty as to implementation of new system with the patent owner preferring to remain in the existing more predictable national-based UK system.

The UPC will be one court but will sit in a number of different locations and will hear disputes pertaining to the Unitary Patent. It will be composed of a central division with its main seat in Paris, with further seats in London and Germany. The London court will hear patent disputes relating to chemistry and pharmaceutical patents, with the German court hearing mechanical engineering cases. The UPC system aims to reduce complexity and

²⁵⁷ EPO welcomes historic signing of the Unified Patent Court Agreement (2013)

increase legal certainty for patent owner, however, this remains to be seen as it has yet to be fully implemented although the Preparatory Committee published the UPC's 17th draft of the Rules of Procedure in November 2014 (which are to be agreed by May 2015). Judges may only be formally appointed once the UPC is established.²⁵⁸

For innovating SMEs who choose to file a Unitary Patent, it appears they will obtain an advantage through simpler administration processes for patent prosecution.

Since the EU patent system was formulated in the 1970s, there has been a desire to have a single EU patent and single European court for resolving disputes. It has taken four decades to create such a system, largely due to the key stumbling block, language. Overall, the development is a positive step for the EU in the long term, although there will be a period of uncertainty for business (and therefore lenders) in the short term. A key decision to be made by innovating SMEs in the short term will be whether to opt-in or opt-out. At the moment it is still not possible to apply for a unitary patent although this option is not far off once the UPC goes live. After the UPC Agreement comes into force, there will be a transitional period of 7 years that may be extended to 14 years.²⁵⁹ In terms of patent-backed lending, on balance, a pan-European approach should create greater certainty (single system, single patent, single court, single renewal fee) and thus value in the medium to long term. This should be viewed as a positive development by lenders. However, a unitary patent will be vulnerable across Europe to a single unfavourable UPC decision which is a new risk that both innovating SMEs and lenders will need to take into account.

The Taylor Wessing Global IP Index 2014 provides a comprehensive assessment of how 36 important IP regimes compare with each other. The UK IP legal regime ranks first

²⁵⁸ 'Progress on implementing the UPC and the Unitary Patent' (23 September 2014) *Allen & Overy*

²⁵⁹ The UK must pass secondary legislation to ratify the UPC Agreement and deposit the instrument of ratification in Brussels.

overall, and second for its patent regime after Germany.²⁶⁰ This is a strong endorsement of the overall quality of the UK's IP legal regime.

Finally, the procedure for registering security interest in patents (an aspect of UK secured transaction law and reform) is also a relevant legal factor. There is potential for this procedure to be streamlined. As its impact on patents (a form of personal property) is primarily of relevance to lenders, it is covered in Chapter 3, section 3.9.

2.8 Conclusion

The PESTL analysis is a widely-used tool that provides a fuller picture of the political, economic, socio-cultural, technological and legal environment for innovating UK SMEs and lenders. It identified areas of concern and weakness which helps to design policy to deal with forecasted changes to the patent ecosystem. Minimising the weaknesses and limitations will increase certainty in patents as asset class and should in theory improve access to patent-backed debt finance. The UK's patent ecosystem is comparatively well-developed to facilitate patent-backed lending.

At a political level, the government needs to demonstrate more effectively that its structures and ministerial appointees are coordinating policies in relation to innovating SMEs, IP, finance and corporate regulation and that UKIPO, BIS and Companies House efforts are synergised. Companies House does not appear to feature in the IP finance discussions.

From the economic standpoint, the government should ensure that public funding remains available until patent-backed debt finance is more accessible.

In terms of the impact of social factors, it was identified that lenders' need a higher level of trust in patents as an asset class. It was argued that in theory, triangulating quantitative, qualitative and strategic IP information should improve validity, reliability and

²⁶⁰ *Taylor Wessing Global IP Index 2014* at <http://www.taylorwessing.com/ipindex/>

accuracy (thus increasing predictability and decreasing volatility) of quantitative asset values.

Addressing the increasingly complex high-tech nature of patent applications in terms of volume, reducing patent backlogs and patent pendency periods are important aspects of improving legal certainty with respect to granted patents (which are more valuable than patent applications). Cross-pollinating the TRL system to estimate the maturity of critical technology elements may assist lenders with technology risk assessment.

The evolving pan-European patent law framework should create greater legal certainty (single system, single patent, single court, single renewal fee) and thus “value” in the medium to long term and should be viewed as a positive development.

Applying a PESTL analysis approach to the patent ecosystem and introducing behavioural finance analysis to a patent-backed debt finance transaction is an original contribution to knowledge. Where a patent portfolio contains international patents, a PESTL analysis could be performed on a country-by-country basis. Chapter 3 explains why debt finance, given the range of finance options available, remains critical to innovating SME success.

3 **Financing Innovating SMEs**

“The difficulty lies not so much in developing new ideas as in escaping from old ones.”

John Maynard Keynes (1883-1946)
(Influential economist of the 20th century)

Introduction

Banks lend funds based mainly on a borrowers’ balance sheet, financial history, cash flow and available security. Patent-backed debt finance is a viable finance method, challenging us to question the status quo and facilitate its use by innovating SME borrowers. One argument why it is rarely used is because the traditional financial statements, analysed by lenders to determine a borrowers’ creditworthiness - the treasure map - do not map well onto “intangibles” (the accounting term which includes IP).

Although there are many public and private avenues for financing a business, debt finance is the critical method of financing innovating SMEs for four reasons. First, the pool public finance is limited. Secondly, the power of debt-funded working capital to generate financial returns is formidable. Thirdly, debt finance is less expensive than equity finance. Fourthly, debt finance is a more strategic financing method as it does not involve diluting equity in the business, selling or losing control of the patents. The UK’s “innovation sector” requires a debt finance banking service specific to its needs which are presently unmet.²⁶¹ This is thought to be because banks are traditionally conservative and process-driven in terms of risk assessment; they deem IP value is uncertain, volatile and thus unable to be covered by a reasonable risk premium. This view will be examined in more detail and in doing so we

²⁶¹ There is an opportunity for the new UK Government-backed British Business Bank, which supports ‘challenger’ banks and other alternatives to the main UK lenders, to play a role in facilitating patent-backed debt finance in the future.

cannot avoid touching on the fallout from the global financial crisis that began in August 2007 which affected access to finance generally.²⁶² While innovating SMEs may have some working capital, large pools of readily available funds to self-fund a business are rare. As such, the role of credit providers in the early stage of the business life cycle is crucial.

Section 3.2 explains the power of debt finance to generate returns. Sections 3.3-3.4 analyses the stakeholders in the development of patent-backed lending and the innovation business life cycle. Section 3.5 discusses the current funding landscape as well as newer funding options. Section 3.6 analyses data from the *WIPO IP Advantage Database* to provide evidence that patent-backed debt finance is underused. Section 3.7 enlightens our understanding of the negative impact of banking capital adequacy requirements and Basel III on patent-backed debt finance. Section 3.8 examines the lender's triad of concerns, introduces the issue of legal risk, uncertainty in patent valuation and the process for registering security interests in patents.

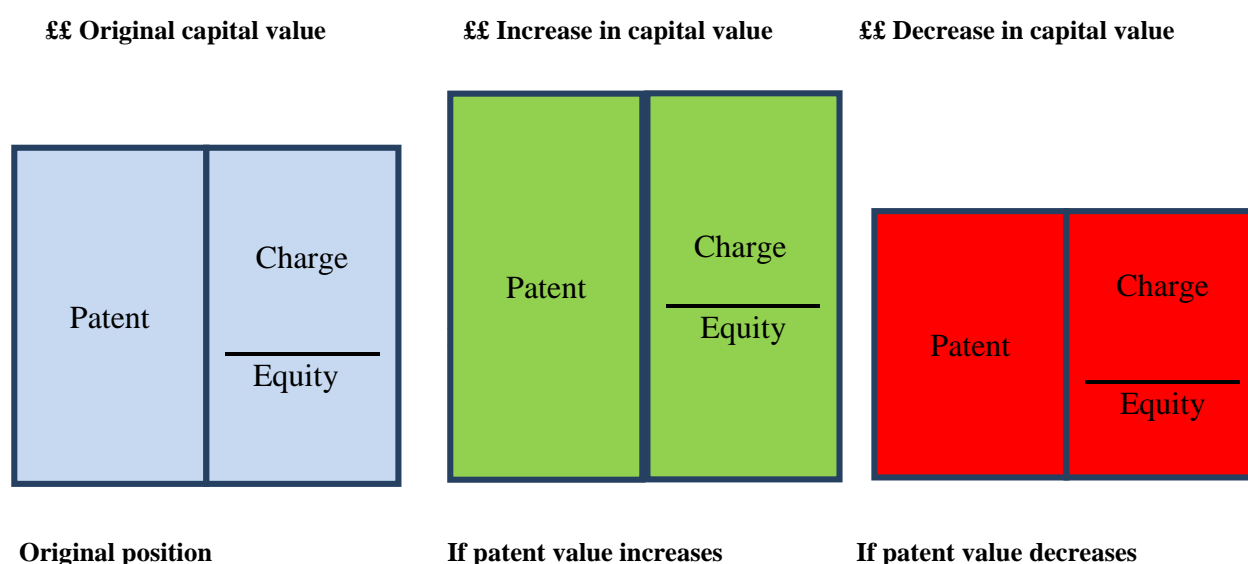
3.1 The power of debt finance to generate returns for innovation firms

Debt finance is critical given the power of debt to generate returns. Compare and contrast an investment with a loan. If an innovating SME invests £100 capital in its business and the return is 10%, then the profit is £10 gross. If it invests £100 but also borrows £900 at 5% per annum interest, then the return will be £55 (calculated as £100 gross minus £45 interest). Leverage transforms a return of 10% into one of 55%. Financial institutions are in the business of lending, receiving deposits and lending the funds, lending much more capital than they are legally required to hold (capital adequacy requirements). Private equity firms

²⁶² Supra [24]

act in an analogous way. However, when an asset declines in value, leverage wipes out capital at a faster rate than the rate of fall in asset value.²⁶³ This is the dark side of borrowing.

Figure 7 Balance sheet diagrams for funding a patent and selling it a year later.



Debt finance is cheaper and is usually the preferred option for innovating SMEs because of the increase in the value/equity upside as demonstrated above. Borrowers benefit from the full upside of risks being taken, while the downside is shared by the creditors (both trade and finance) if there is a possibility of default. We also know that it is difficult for innovating SMEs to access debt financing in the current economic climate. Consequently, the upside in equity necessary to fund the growth stage of the business is lacking.

3.2 Patent-backed lending transactions stakeholder analysis

The turbulence and fallout from the global financial crisis²⁶⁴ resulted in further uncertainty for innovating SMEs who wish to borrow and also adversely affected stakeholders who have an interest in and an ability to influence innovating SMEs. The

²⁶³ Supra Bootle [192] p97

²⁶⁴ Supra [24]

stakeholder approach assumes that an effective finance strategy for the innovating SME requires consensus from a plurality of key stakeholders about what it should be doing and how these things should be done.²⁶⁵ The greatest challenge involves innovating SMEs' efforts to influence and shape the finance market in their favour.²⁶⁶

It is important to assess each stakeholders' potential to influence the innovating SME successfully obtaining debt finance. The author has identified the key stakeholders and classified the stakeholder relations in Figure 8 below. According to the framework,²⁶⁷ primary stakeholders have a direct economic and/or legal interest in the issues. Secondary stakeholders have an indirect interest. Tertiary stakeholders have no direct economic or legal interest in the debt-finance transaction, rather they are influenced further downstream. Stakeholder relations are divided into four types: (1) supportive; (2) mixed blessing; (3) non supportive; and (4) marginal.²⁶⁸ Stakeholder interests need to be balance to achieve the best possible outcome.

²⁶⁵ Savage, G. et al, 'Stakeholder analysis for multi-sector innovations' (1991) Vol. 17, Issue 2/3, 181-203 *Journal of Business and Industrial Marketing*, p1

²⁶⁶ Ibid

²⁶⁷ Donaldson, T. et al 'The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications' (1995) 20 (1): 70–71 *Academy of Management Review* (Academy of Management)

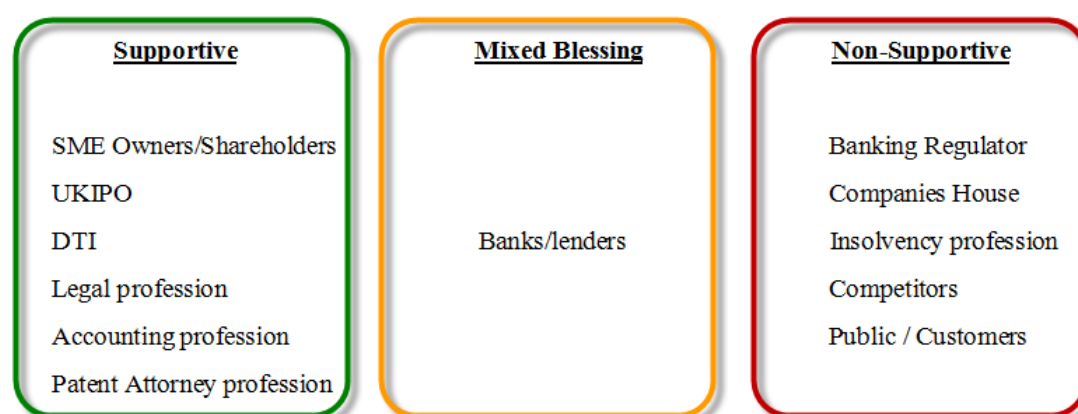
²⁶⁸ Supra Savage [264] p1

Figure 8 Stakeholder analysis

Category	Stakeholder	Status	Stakeholder Relation
SMEs Innovating Sector	Owners/Shareholders	Primary	Supportive
Finance Section	Banks/ Lenders	Primary	Mixed blessing
Government	Banking Regulator	Primary	Non-supportive (Regulators have high power and legitimacy and real direct impact as they are standards makers)
Government	Legislature/UKIPO/ BIS	Primary	Supportive infra-structure provider
	Companies House	Secondary	Non-supportive infra-structure provider
	DTI	Secondary	Supportive facilitator
	Legal Profession	Secondary	Supportive facilitator
	Accounting Profession	Secondary	Supportive facilitator
	Patent Attorney Profession	Secondary	Supportive facilitator
	Insolvency Profession	Tertiary	Non-supportive facilitator (acts in the interests of creditors)
Business Sector	Competitors	Tertiary	Non-supportive
	Suppliers	Tertiary	Marginal
The Public	Customers	Tertiary	Marginal

Only one “mixed blessing” or ambivalent stakeholder has been identified, namely the banks/lenders. This is because they have a high potential to benefit as well as a high potential to be harmed by the innovating firms’ patent-backed lending transaction. The other stakeholders are not negatively affected in the same way as is, potentially, the lender. In high risk situations, lenders will typically shift into the “non-supportive” category. If however, trust is established between the innovating SME and the lender, it will become supportive unless and until the borrower is unable to repay the loan. Accordingly, the “mixed blessing” category is very narrow, see Figure 9 below.

Figure 9 Stakeholders' relations with the patent-backed finance transaction



Even though all organizations have a role to play in the patent-backed lending ecosystem, the diagram depicts where to focus efforts in terms of strategy – squarely on the banks in their role as lenders. It is more efficient to focus on the stakeholder from which the patent-backed lending transaction has the most to gain. There is a need to understand how to positively influence banks to support patent-backed lending transactions. Strategies should emphasize:

- (1) how banks will profit from the new role they play by providing debt finance;
- (2) the medium-term benefit to be achieved by nurturing the business relationship as it grows and requires additional financial services generating additional banking fees;
- (3) that lenders such as Santander, Clydesdale Bank and Silicon Valley Bank, who are more receptive, risk tolerant, flexible and creative in relation to patent-backed lending will gain “early mover” advantage²⁶⁹ by gaining a share in the innovation finance market. The optimum strategy is financial to show how patent-backed loans give value (profits) to lenders.

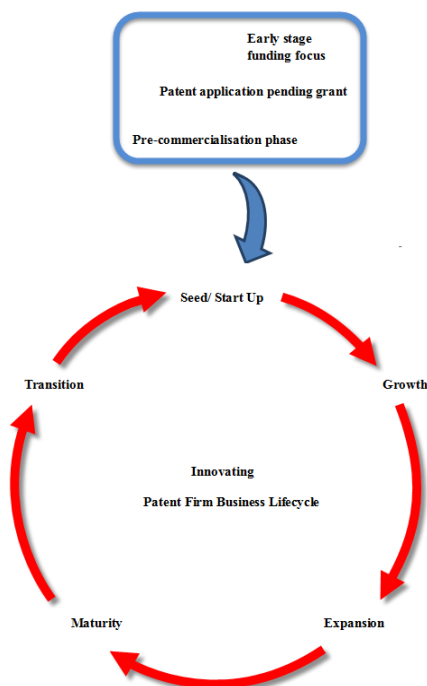
Next, we consider the business life cycle and the existing innovation finance paradigm.

²⁶⁹ For our purposes, early entrants into the patent-backed debt finance market will enjoy preferential access to information, the client pool and create a barrier to entry for others that may wish to compete.

3.3 Financing innovation and the business life cycle

To commercialise an invention working capital (money) is typically needed for a variety of business activities including: market research; patent and prior art searches; prototype development; patent filing and legal fees; professional advisers (e.g. patent attorneys, accountants and lawyers); and patent renewal fees. Many of these costs are unique to innovation. The principles of business finance are broadly the same for innovating SMEs as for any larger organisation. Innovating SMEs have a predictable life cycle and we will use the term to mean the firm has a potentially patentable invention. In short, they start with an idea leading to a potentially patentable invention, search for a business model, then build an appropriate infrastructure via the legal forms of business organisation (e.g. partnership or company) and then grow as they commercialise their invention and bring it to market generating profits. Figure 10 depicts the classic business life cycle.

Figure 10 **The business life cycle – the journey between concept and commercialisation**



In this thesis, our focus is early in the classic business life cycle, between the initial start-up and the critical early growth stages of the innovating SME. It is at this stage that increased access to debt-finance is needed. The seed stage is when the invention is simply a thought or an idea which can lead to the very conception of a new business. There is no proven market or customers for the invention, so the start-up will rely on seed capital (cash) usually self-funded by the owner/ inventor, friends and family. Debt-finance is not a viable option. Using internal finance to reduce transaction costs is the cheapest option. Famous examples of firms that relied solely on self-funding²⁷⁰ during the seed stage include Apple, Inc., Google and Starbucks.²⁷¹ While inventor entrepreneurs may have some savings, large pools of readily available savings set aside to self-fund a business are rare which is why the role of credit providers is critical.

3.4 Financing innovation – the existing paradigm

A business comes into existence when it has a legal structure and a business plan – it is usually small and privately owned. During the first year of existence, R&D and the creation of prototypes in connection with the invention is progressing. Patents applications are also being made. At this point the financial burden on innovating SMEs who wish to commercialise an invention is particularly high, given the costs of applying for patents, patent attorney fees and prototype development, all necessary steps before a product can be launched. The start-up innovating SME is only just beginning to establish a market presence and develop a customer base. Meanwhile, although the patent applications are valuable business assets, they are invisible on the firms' balance sheet as they are classified as “intangibles” for accounting purposes making successfully applying for a loan and receiving

²⁷⁰ ‘Self-financing’ (18 February 2014) *Trizle* at <http://www.trizle.com/tips/20-self-financing>

²⁷¹ Apple, Inc. founder Steve Jobs (1995 – 2011) with minimal personal savings of about \$1,300 USD resulting in the personal computer that ignited the digital age.

a favourable lending decision difficult. The subject of accounting for intangibles is explored in Chapter 4.

During the growth stage, the biggest challenge facing the innovating SME is dealing with the range of issues that demand more money. Growth life cycle businesses focus on running the business in a more formal manner, improving accounting systems and hiring more staff to deal with the influx of business activities. Additional sources of funding may become available from retained profits, suppliers, customers, government grants and partnerships (public funding e.g. the Creative England Business Loan Fund, Start Up Loans etc.),²⁷² banks, private investors, venture capitalists (VCs) and investment funds.²⁷³ However, each type of funding has advantages and disadvantages coupled with availability and accessibility issues. The funding needs of innovating SMEs are typically high, but their ability to raise external debt finance funding is limited because they have insufficient traditional tangible assets to offer as security to lenders.

Directors of innovating SMEs who own their homes and have equity by paying off a mortgage may be in a position to re-finance past mortgages or obtain a home equity line for the business. This is a low cost finance method. However, for those with family obligations using the family home as security is a least favoured innovation finance method. Sir James Dyson had no other option to finance his business.²⁷⁴ In an article entitled, “Big Achievers Share the Greatest Risks They Ever Took”²⁷⁵ Kirdahy interviewed Dyson who stated:

²⁷² Grant funding schemes in the UK include Catalysts, Collaborative Research & Development, Enterprise Investment Scheme (EIS) Growth Vouchers, IC Tomorrow, Innovation Vouchers, Launchpads, Seed Enterprise Investment Scheme, the Small Business Research Initiative and SMART.

²⁷³ *A Guide to Funding Innovation* (2013-2014) Oxford Innovation Ltd

²⁷⁴ Partly supported by his wife's salary as an art teacher, after five years and an incredible 5,127 prototypes, Dyson launched the 'G-Force' vacuum cleaner in 1983. However, no manufacturer or distributor would take on the product in the UK, as it was considered 'disruptive technology' that would disturb the valuable market for replacement dust bags. This account of Dyson's innovation financing experience is largely constructed from James Dyson's autobiography, Coren, G. *Against the Odds* (1997)

²⁷⁵ Lee, J. 'Big Achievers Share The Greatest Risks They Ever Took' (3 July 2011)

Every year I was getting further and further into debt. In the end, I owed something like \$4 million USD. I took out two or three mortgages on my house.²⁷⁶ If I failed, everything I owned would've gone to the bank. Everybody thought I was completely mad. [As it turned out] I repaid the bank loan within about four or five months of selling the product. The bank kept using me in their advertising as an example of how they loan money.

Dyson was only able to obtain the business loan using his home (traditional tangible security) rather his company's burgeoning patent portfolio.

Some may be tempted to use credit cards (especially those introductory 0% interest free periods), however this is a finance method of last resort as the interest rate ultimately charged is typically in excess of 16% and as high as 30%. The high monthly interest payments would become a significant drain on cash flow.

The obstacles to accessing debt finance regularly cause innovating SMEs to seek alternative funding. At this juncture they face a funding strategy choice – should they pursue debt, equity or a combination of both?

3.4.1. Debt finance – the simple business loan contract

Debt finance involves a bank advancing money that will be repaid with interest over an agreed term or through a rolling arrangement such as an overdraft. The bank makes a profit on the loan transaction by charging interest. Debt finance can be more complex than a simple loan but for our purposes we will limit our discussion to simple loans. In legal terms, it is a contractual arrangement between a business and the lender whereby the borrower pays a predetermined amount of interest that is not a function of its operating performance, but

²⁷⁶ To finance the development of the cyclone vacuum invention, Dyson raised £25,000 self-funding, the same amount from a friend, Jeremy Fry and £18,000 raised by selling the a small parcel of land (the vegetable garden) as part of this family home.

which is treated in accounting standards as an expense for tax purposes and is therefore tax-deductible. The debt has a fixed life and has a priority claim on cash flows in both operating periods and insolvency. This is because interest is paid before the claims to equity holders (e.g. shareholders), and, if the business defaults on interest payments and the loan is secured, the lender will sell the secured asset and the amount owed will be repaid before any payments are made to equity holders (see s 3.9).

Before making the loan, lenders will want to know what the firm will do with the money advanced and how it intends to allocate funds to develop the business. A borrower needs to show: (1) what the money will be used for; (2) how long the money will last; and (3) how much revenue will be generated by the business to cover repayments. In a conventional business loan, lenders perform careful analyses to make sure the borrower can repay the loan based on the business generating a positive cash flow. In most cases, banks want security for the loan which it can take possession of and sell in the event of default in repayment. As we know, this is particularly difficult for an innovating SME whose key assets are intangible inventions with patent protection potential. Further, most lenders do not fund start-ups with seed capital, preferring to see a positive track record of revenue and a solid repayment track record (a credit history). In almost all cases, lenders will require a personal financial guarantee as additional security (e.g. over real property, shares, mutual funds etc.) for the loan. Lenders will routinely require a statement of personal assets and liabilities. Ideally, they prefer to take a fixed charge on personal assets, such as the company director's house.²⁷⁷ As more people in the UK struggle to become home owners, traditional tangible forms of personal security for business loans will decline. In *Banking on IP?* the authors stated that, "traditional fixed assets simply no longer exist".²⁷⁸ Inevitably, this will lead to lenders contemplating lending against modern intangible forms of personal property including IP.

²⁷⁷ See section 3.9 for a detail discussion of the legal characteristics of a fixed charge as a security device.

²⁷⁸ *Supra Banking on IP?* [18] p13

The cost of a standard debt finance business loan includes interest, administrative “transaction” costs, legal fees and the impact of the proposed loan on the firm’s tax position.

3.4.2 Debt finance – the overdraft facility

The most common type of debt or loan financing is an unsecured overdraft facility attached to the firm’s bank account.²⁷⁹ Some SMEs will switch banks in order to obtain a larger unsecured overdraft facility. It is a “facility” because it is an arrangement available at the borrowers’ discretion to use it or “draw down” on the pre-authorised funds. It is a “revolving facility” because the borrower can repay sums borrowed and draw-down further sums at will over the life of the facility. When the company’s account becomes overdrawn, the bank becomes a financial creditor of the company and the company becomes a debtor. As a minimum, the terms of the overdraft facility will state the maximum the company may owe the bank at any point in time (the limit), the interest rate payable and the circumstances in which the bank can require the company to repay the sum borrowed/overdrawn.

While lenders provide general business advice, they do not become directly involved in managing the business. As the global financial crisis worsened in 2008-2009, the availability of debt finance fell and the cost of borrowing increased.²⁸⁰ The situation in 2014 had not improved significantly. Alisdair Steele, Head of the Financial Sector Group, Nabarro LLPO confirms:

It is widely acknowledged that banks are no longer meeting the funding needs of businesses, particularly of SMEs. The scale of the funding gap is huge, with estimates of £29bn to £59bn cited for SME financing alone. While the debate over exactly why

²⁷⁹ McLaughlin, S. *Unlocking Company Law* (2013) Routledge p141

²⁸⁰ Eccles, L. ‘How bank lending fell by £365 Billion in five years’ (7 September 2014)

this has happened (and what can be done to reverse it) continues, small businesses need to find the funding that will allow them to deliver growth and jobs.²⁸¹

The next section analyses several types of finance: equity, hybrid, mezzanine, online crowd and pension-led funding, explaining their advantages and disadvantages relative to patent-backed debt finance.

3.4.3 Private equity finance and venture capital

When conventional bank lending is not available for innovation projects that a lender might classify as “speculative”, many innovating SMEs seek alternative sources of funding from private equity investors who make their return from the high growth of the business. An innovating SME needs to show they have a viable business plan for an invention with high commercial potential. One method of equity financing involves bringing in shareholders for partial ownership in exchange for money and expertise. Another form involves selling part of the business by issuing shares in the private limited company (possibly a subsidiary Special Purpose Vehicle) in exchange for money. While the investors may receive a dividend on the shareholding, in the early stages of a business most profits are usually retained by the company to grow the business. The important return for equity investors is when the success of the innovating SME allows their shares to be sold at a substantial profit. In return for their cash, private investors will insist on a large equity stake. The cost of capital is typically in the range of 20% and as high as 40%. As with commercial lenders, they are often more interested in larger companies with a business track record, rather than start up or early growth stage firms. Equity investors often, but not always, add value in addition to the funding they provide by facilitating contacts from their business

²⁸¹ Davis, A. ‘Seeds of Change: Emerging sources of non-bank funding for Britain’s SMEs’ (2012) *Centre for the Study of Financial Innovation*, p1

network; offering the benefit of their commercial experience; or potentially by serving as non-executive directors on the innovating SME's board.

3.4.4 Venture capital

Venture capital (VC), a form of private equity investment, was a critical component of financing innovation in the 1980s. However the amounts funded and the number of companies supported by such funding continues to decline.²⁸² As at 2014, VC financing is the exception rather than the norm.²⁸³ In the 1980s, the VC model comprised mostly wealthy individuals investing funds in a business. As such, investors were able to maintain a patient outlook for a significant return on their investment within a timeframe of 10 years or more. However, as institutions become more prevalent as VCs, they were able to amass a greater quantum of money by syndicating changing the focus from nurturing growth to increasing fees based on larger investment syndicates. To keep shareholders content, VC funds aim for maximum liquidity, creating early pay-off via premature “exits” rather than long term investment.²⁸⁴ Further, VCs favour investment in information technology as this type of technology has a lower capital investment requirements. This preference is problematic for the UK, because in contrast to the US, generally only information technology hardware is patentable in the UK. Patents are not granted for business methods²⁸⁵, nor computer programs or software unless they provide a technical effect: s.1 (2)(c) *Patents Act 1977*. Such technical effect or character lies not in the simple operation of computers but in effects which go further than normal computer operations and involve computer implemented inventions. A consequence of the VC model is that to attract capital, innovating SMEs seek

²⁸² European venture capital fundraising declined from 2Q 2014 but managed to exceed 3Q 2013 levels. See ‘Europe 3Q 2014’ (2014) *Dow Jones Venture Source*, p2

²⁸³ Mulcahy, D. ‘Six Myths About Venture Capital Offer Dose of Reality to Start-ups’ (16 April 2013)

²⁸⁴ Schramm, C. and Bradley, H. ‘How Venture Capital Lost Its Way’ (2009) *BusinessWeek* at www.kauffmann.org

²⁸⁵ See T 931/95 *PBS Partnership/Controlling Pension Benefits System* [2002] EPOR 522 and T 258/03 *HITACHI/Auction method* [2004] EPOR 548

to file patents as early as possible, to accommodate the VC's early exit preference. The UK's laws on patentable subject matter are clearly a disadvantage in terms of access to VC investment when compared to the US. It is predicted that in the future, VCs both in the UK and abroad, will continue to play a significant, but smaller, role in channelling capital to start-up firms²⁸⁶ and new hybrid methods of funding will become more common. The type of funding an innovating SME ultimately pursues largely depends on the answers to the questions set out in Figure 10 below.

Figure 11 **Debt or equity finance?**

Debt finance option	Private equity option
Do I have sufficient assets that can be used as security to guarantee the loan?	Am I will to give up a percentage of control in exchange for the funding?
Am I willing to lose my collateral such as a house in the event the business fails?	Am I willing to take advice from equity investors?
Am I able to make the required payments to pay off the loan?	Am I will to share the profits of the business/invention?
Do I have a solid financial track record personally and in relation to past business ventures?	Am I skilled enough to make a series of presentation to investors about the invention to persuade them of its potential for growth and high returns?

Source: *Valuation and exploitation of intellectual property and intangible assets (2003)*

3.4.5 Mezzanine finance

Mezzanine finance combines elements of debt financing and equity investment (hybrid finance) and can provide a relatively inexpensive financing alternative for early growth stage SMEs where there is an element of risk.²⁸⁷ It is not a source of start-up funding and is now available from lenders who acknowledge the “funding gap” and the need to adapt the traditional lending model to the unusual dynamics of innovation. One is Santander plc,²⁸⁸

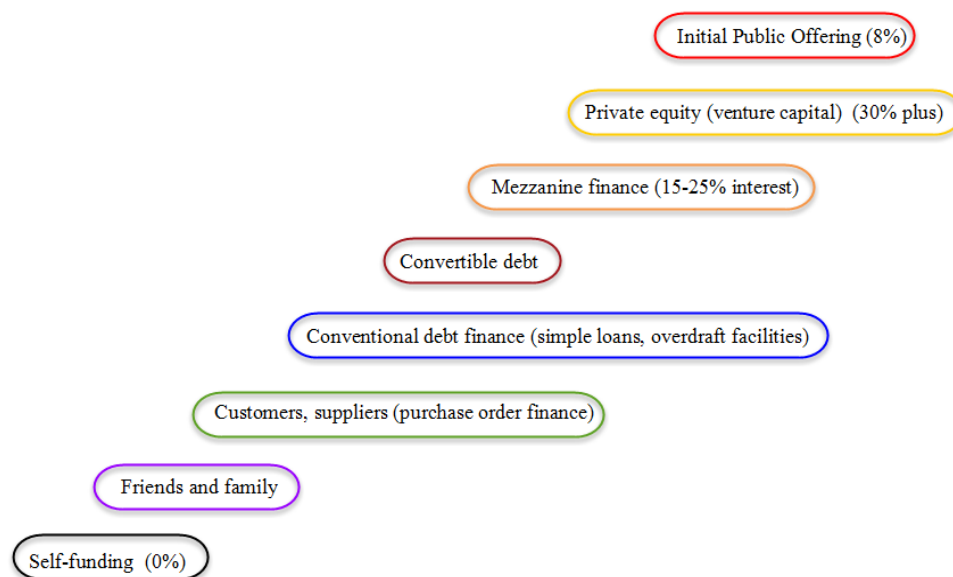
²⁸⁶ Mulcahy, D. ‘Six Myths About Venture Capital Offer Dose of Reality to Startups’ (16 April 2013)

²⁸⁷ <http://www.santanderbreakthrough.co.uk/advice/finance/funding-options-mezzanine-finance>

²⁸⁸ The bank was established on 11 January 2010 when Abbey National plc, which also by then included the savings business and branches of Bradford & Bingley plc, was renamed Santander UK plc. Alliance & Leicester plc merged into the renamed business in May 2010.

a UK bank wholly owned by the Spanish Santander Group. Mezzanine finance providers typically (although not universally) seek to share in the firm's growth by building an element of equity investment as part of the finance transaction. Figure 11 illustrates the tiers of finance available at different stages of the business lifecycle - the figure to the right indicates the approximate cost of the finance as a percentage of the amount borrowed.

Figure 12 **Tiers of finance**



This equity component means that mezzanine providers are much more comfortable with risk. The cost of equity is lower, in the range of 15% – 25%, less than in a conventional VC investment, but higher than a commercial bank loan. Mezzanine finance sits between conventional debt finance and private equity and may be more “cash flow friendly”. In contrast with a term loan that requires regular repayments (monthly or quarterly) which reduces cash available to the firm, mezzanine loans are usually repaid at annual intervals. The mezzanine loan is structured so that a high proportion of the money is repayable towards the end of the life of the loan agreement. This funding strategy enables the innovating SME to implement its growth strategy with lower loan repayments and consequently less impact on cash flow at the front end of the term of the loan. However, Santander advises, “this can be a

double-edged sword, as a company that fails to deliver on its growth protections will nevertheless be looking at large repayments towards the end of the term.”²⁸⁹ The problem for innovating SMEs is that most mezzanine finance providers operate at the larger end of the market and few offer loans less than £10 million. Accordingly, mezzanine finance, despite its advantages, is currently not a feasible option for the majority of innovating SMEs in the early stage of their business life cycle.

3.4.6 Debt finance by way of a syndicated loan

A sophisticated method of debt finance is the syndicated loan. We saw earlier in Chapter 1 that this method was used by the PRC’s China Development Bank, which led a consortium of lenders to fund Quanlin Paper. A loan is entered into between a company and more than one lender, who are then known as the “syndicate” of lenders or “bank syndicate”. The loan is usually substantial and the contractual arrangements between the various lenders and the borrowing company can be complex and require professional legal advice. There is usually a lead lender or “underwriter” of the loan which is often the bank providing the largest proportion of the funds. The main reason for syndicated loans is reduce the risk to the lenders by sharing the risk of the company not being able to repay the large sum of money borrowed between them. The loan transaction costs will be higher given the various parties that need to be involved which makes such loans only viable if a large sum is to be borrowed. London continues to be one of the most active centres for the arrangements of syndicated loans.²⁹⁰ Syndicated loans would appear to have solid potential for patent-backed lending given the reduced level of risk to each lender, however the transaction costs involved may be high for the innovating SME at the early growth stage.

²⁸⁹ <http://www.santanderbreakthrough.co.uk/advice/finance/funding-options-mezzanine-finance>

²⁹⁰ Rhodes, T. and Campbell, M. *Syndicated Lending: Practice and Documentation* (2009) 5th ed. *Euromoney Institutional Investor, Inc.*, Foreword by Sir Andrew Large.

3.4.7 Convertible Debt

A convertible debt is another form of hybrid finance whereby the loan can convert to equity (shares in the business) instead of repaying the loan. A better interest rate is usually available. However, if the loan is not repaid, equity in the business will be lost. American financier Peter Thiel entered into a convertible debt finance arrangement with entrepreneur Mark Zuckerberg at an early stage in Facebook, Inc.'s business lifecycle.²⁹¹

3.4.8 Financing options beyond the growth stage

Expanding companies are those that have succeeded in attracting clients and establishing a market presence. They are likely to be financed by private equity and/or VC in addition to owners' equity and bank debt – in other words, a mix of funding sources. *High growth companies* with rapidly growing revenues may seek to publicly trade shares for example on the London Stock Exchange (LSX) Alternative Investment Market (AIM). Firms issue equity in the form of shares and other financial instruments, known as an initial public offering (IPO). However, substantial fees and charges are involved in floating a new company as well as additional expenses in connection with a variety of professional advisors. Debt issuers must pay an admission fee to list debt on the LSX – for standalone issues from UK domestic issuers, the fee is based on the face value of the share where it is admitted to trading²⁹² plus VAT of 20%; and the UK Listing Authority also charges vetting fees on all listing applications. In reality, few SMEs have the opportunity to float via AIM or achieve a full listing on the LSX main market. A public listing is a more realistic funding option for firms in the expansion phase of the business lifecycle, whereas the focus of the thesis

²⁹¹ Kirkpatrick, D. *Facebook Effect: The Real Inside Story of Mark Zuckerberg and the World's Fastest Growing Company* (2012) The Random House Group

²⁹² <http://www.londonstockexchange.com/specialist-issuers/debts-bonds/how-to-issue/listingcosts/debt-price-list.pdf>

between start up and growth. *Mature companies* typically finance their activities by combination of internal financing, debt and equity.

3.4.9 New financing models –CrowdFunding²⁹³ and Peer-to-Peer Lending

If traditional lenders fail to move with the times, they may find that their out-dated lending model will be swept away by alternatives such as online “CrowdFunding” and “Peer-to-Peer Lending”.²⁹⁴ These are e-platforms via websites whereby patent owners can pitch their ideas, outlining to members of the public exactly how much funding they require to develop and commercialise their inventions inviting them to lend (debt CrowdFunding) or invest small amounts of money in shares (equity CrowdFunding). The funds raised are then used as seed or start-up capital.

The CrowdFunding model is rapidly evolving now that more online platforms are being formally regulated by the UK’s Financial Services Authority (FSA) to protect investors. In July 2011, Abundance Generation was the first debt finance online CrowdLending platform regulated by the FSA. This online private equity platform does not facilitate direct investment in small businesses as such, rather it holds shares in a company as a nominee and manages them on investors’ behalf. The public are able to invest small amounts (as little as £10) in unlisted businesses (usually with no upper limit) without the need to use a traditional stock exchange such as the LSX. Such websites create a public market minus some of the traditional market control mechanisms that are required when listing on a stock exchange and are a low cost option for attracting investment. Costs are further reduced as the companies hoping to attract investment do not necessarily even have to sell equity, instead they can give “discounts” and “rewards” in the form of free goods in

²⁹³ Also CrowdSourcing, CrowdLending, and CrowdInvesting.

²⁹⁴ A form of crowd funding that involves the practice of lending money in the form of an unsecured personal loan to unrelated individuals (without going through a traditional financial intermediary such as a bank), using online credit checking tools.

exchange for funding. According to the FSA, most CrowdFunding platforms require a specified target to be reached during the fundraising period before the money is passed to the business – the “all or nothing” model - with contributions returned to investors if the target is not met.²⁹⁵ In February 2013, the FSA authorised CrowdCube with more e-platforms to follow. The main advantage is gaining direct access to an enormous pool of investors at a much lower cost than private equity investors or lenders are willing to offer.

3.4.9.1 Crowdfunding and IP issues

While it is positive that the UK financial services industry and the FSA are reacting dynamically to this new funding model,²⁹⁶ the advantages for innovating SMEs are not so clear-cut. This is due to the unique features of the patent law system and the requirement of “absolute novelty” as a criterion for obtaining patent monopoly protection. A basic requirement under section 2 PA 1977 is that the invention be novel (new) and if a patent application does not satisfy this condition, it will not be granted by the UK IPO. This legal requirement cannot be fully understood without first being aware of another fundamental concept in patent law. The priority date of the patent application is the date on which it is tested against the “state of the art”,²⁹⁷ normally the filing date of the application. The “state of the art” comprises all matter made available to the public before the priority date of the invention.²⁹⁸ This includes all knowledge anywhere in the world on the subject matter of the invention. Novelty-destroying prior art could include information that is part of common general knowledge, information disclosed by an earlier user of the invention, information disclosed in a single copy of a published document or by oral communication. A business must keep a potentially patentable invention absolutely confidential until a patent application

²⁹⁵ http://www.fsa.gov.uk/consumerinformation/product_news/saving_investments/crowdfunding

²⁹⁶ Berges, A., Guillen, M.F., Moreno, J.P., Ontiveros, E. *A New Era in Banking: The Landscape After the Battle* (2014) Bibliomotion, Inc.

²⁹⁷ s.5 (1) PA 1977

²⁹⁸ s2(2) PA 1977

is filed. Only then will they be able to freely disclose the invention to the public via the online funding platform. Therefore a key challenge is that the patentable details of the invention could be exposed to the public, fall into the public domain, become part of common general knowledge thereby destroying novelty and the potential to acquire both a patent monopoly and create a valuable business asset. The practical answer to the loss of novelty problem is to file any patent application(s) before accessing a CrowdFunding platform.

A further IP law issue arises if the innovating SMEs (pitch creator) accidentally and/or unknowingly incorporates IP from a third party IP rights holder for which a user licence is needed, giving risk to an infringement claim. The risk of potential IP infringement could result in loss of business, revenue, reputation and competitive advantage. However, if the required licences are obtained, higher funding levels may be achieved.²⁹⁹ At present however many innovating SMEs have a low level of knowledge or understanding of patent law principles and patentability requirements.³⁰⁰ Those with conscious knowledge of patent law principles will be best positioned to secure funding without compromising their existing or future patent rights. Further, if the funds are actually needed to pay patent application costs and patent attorney fees, innovating SMEs using CrowdFunding platforms may risk being unable to patent their invention if “novelty” is destroyed by disclosing how it works online. Nevertheless, CrowdFunding is a new option with considerable potential. As yet, no data available in the UK about innovating SMEs financed via regulated platforms. In the US, one success story is that of Dan Provost and his partner Thomas Gerhardt who raised \$137,000 USD (although they initially only asked for \$10,000 USD) in 2010 via the Kickstarter³⁰¹ for their simple yet well-designed The GLIF iPhone 4 Tripod Mount and Stand

²⁹⁹ *Copyright and the Value of the Public Domain: An Empirical Assessment* (February 2015) Independent Report Commissioned by the UKIPO carried out by CREATE, p5

³⁰⁰ Pitkethly, R. ‘Intellectual Property Awareness and SMEs: UK IP Awareness Survey 2010’ (2010) UK IPO which concluded that UK SMEs are effectively unaware of the IP system.

³⁰¹ www.kickstarter.com, the world’s largest funding platform for creative projects.

invention. They received financial support to commercialise their prototype from over 5000 investors who could buy shares and pre-order based on the prototype.³⁰²

Figure 13 **The GLIF iPhone 4 Tripod Stand and Mount**



Photo credit: <https://www.kickstarter.com/projects/danprovost/glif-iphone-4-tripod-mount-and-stand>

No doubt more successful examples of how CrowdFunding has assisted inventors and innovating SMEs will continue to materialise. Supporters of this funding method assert that it enables: (1) ideas, which conventional financiers spurn, an avenue through which to attract funding via the “wisdom of the crowd”; and (2) a receptive market to be identified.³⁰³ However, innovating SMEs will need patent law advice to protect their position and invention before pitching to raise money on CrowdFunding platforms.

3.4.9.2 Pension-led funding

Given the draught of bank lending, many businesses are considering non-bank lending finance options. Pension-led funding uses the owner’s accrued pension funds to invest in their own innovating SME or larger company. It enables the owner (typically a director/shareholder) with a good size pension pot to obtain funding, essentially a commercial loan from the pension fund, without having to provide a personal guarantee to a lender (e.g. over the home or other personal assets) by using IP assets to secure the loan. Once the value of the patent assets has been established, the pension’s trustees agree to lend money to the

³⁰² <http://blog.crowdfunder.co.uk/2010/11/08/147/>

³⁰³ Surowiecki, J. *The Wisdom of Crowds: Why the Many are Smarter than the Few* (2005) Abacus, New York

firm secured against the patent assets or buy some or all of the patents. As the innovating SME generates an income stream from its business activities, it repays the pension scheme. It applies to directors and/or senior executives accumulated pensions and does not affect employee pensions. In the event of non-payment, only those pensions are at risk. Thus, pension-led funding shifts business risk to the individual(s) directors/senior executives.

If the innovating SME defaults, the pension scheme is protected from external creditors. However, as a creditor itself to the business, the pension scheme will suffer a loss or be written off entirely. One view is that pension-led funding is less risky for the innovating SME than a traditional bank loan which is only viable as long as the lender is willing to supply funds. With pension led funding the directors may be appointed as trustees and have more control. In addition, there will be no bank charges although there will be legal costs in drafting the pension loan documentation. If a pension scheme member retires, the value of the IP may be adversely affected depending on his or her role within the business. This type of non-bank lending only has potential for pension-rich innovating SMEs.

3.4.10 UK innovating SMEs and access debt finance

Financing a business is not static. Rather the financing models change over time in response to the business life cycle; the relative costs of different types of financing; and their impact on control or ownership of the business. The *amount* of funding depends on business needs, whereas the *type* of financing arrangement used to obtain the required funding will largely be determined by the relative costs of different types of financing. Assuming a key corporate objective is to maximise profits, then a business will prefer least expensive finance and no loss of control or ownership of the business. At present, debt finance is available for well-run, profitable companies of any size provided they generate regular cash flows with traditional assets to act as security e.g. property, machinery, other capital assets, cash, stock,

receivables, etc. The problem for innovating SMEs is when they are only able to provide intangibles as security. Commercialising an invention is a lengthy process and establishing regular cash flows, either via purchasing orders or a licensing revenue streams is challenging. In light of the global financial crisis,³⁰⁴ lenders are more cautious about the scale of their commercial lending and quality of the assets offered as security.³⁰⁵ In April 2013 the International Monetary Fund (IMF) pointed out that a continuing problem for UK fiscal policy is that growth in the private sector is still being hampered by a lack of debt finance:

In the euro area, real GDP is projected to contract by about ¼ percent this year before growing again in 2014. Credit channels are broken: better financial conditions are not yet passing through to companies and households because banks are still hobbled by poor profitability and low capital.³⁰⁶

The Big Innovation Centre's Entrepreneurial Finance Hub³⁰⁷ is presently developing an investment and trading finance platform (physical and digital) to finance high-growth firms through critical phases of growth. The project has promise, but is at an early stage. A group of high profile banks, business incubators, universities, global corporates, alternative finance providers, VCs and business angels, government agencies are participants.

The next section investigates the types of funding innovation firms surveyed by WIPO actually used to develop their inventions and get them to market.

³⁰⁴ Supra [24]

³⁰⁵ Fraser, S. *The Impact of the Financial Crisis of Bank Lending to SMEs: Economic Analysis from the EU Survey of SME Finances* (July 2012) University of Warwick, Report prepared for the Breedon Review of Business Finance for the Department of Business Innovation and Skills at pp4-6

³⁰⁶ <http://www.imf.org/external/pubs/ft/survey/so/2013/RES041613A.htm>

³⁰⁷ www.biginnovationcentre.com/entrepreneurial-finance-hub

3.5 WIPO *IP Advantage* database analysis

In 2010, WIPO launched *IP Advantage*³⁰⁸ a database of over 100 case studies covering 48 different countries which profiles the experiences of inventors, creators, entrepreneurs and researchers - the only database of its kind that has an innovation finance component, as far as the author is able to ascertain. It provides an intuitive interface that enables one to search according to type of IP and the focus (e.g. R&D, financing). *IP Advantage* is a valuable and unique resource as the case studies provide a rare opportunity to analyse how innovating SMEs obtain finance to commercialise their inventions. A database search was made selecting “patents” and “financing” as the focus returning 19 case studies for evaluation, including 4 from the UK. The dataset captures the financing experience of a collection of innovating SMEs in the recent past. The basic proposition is that patent-backed debt financing will feature rarely, if at all, as funding method given lenders’ apparent aversion to using patents as security. Figure 13 below contains a table summarising the *IP Advantage* results. The country, company name and industry sector is set out for each entry, followed by a brief description of the finance method used, classified and colour coded according to type: self-finance, public, private or debt.

³⁰⁸ The IP Advantage is based on a proposal and funding from the Japanese government and is one of the first concrete deliveries of the WIPO Development Agenda project were agreed by member states at the end of 2009. French and Spanish versions are under development. At http://www.wipo.int/pressroom/en/articles/2010/article_0037.html

Figure 14 Evaluation of WIPO's *IP Advantage* Case Studies focussing on Patents and Financing

Country	Name/Industry	Financing Type
Argentina	Descorjet SA - Durable Household Products	Private funding
Australia	ITL Limited - Health Care Equipment and Services	Self-financing Public funding
Brazil	FK Biotecnologia S.A - Pharmaceuticals and Biotechnology	Private funding (VC)
Chile/USA	Florencio Lazo Barra –Farming, Fishing & Engineering	Public funding
Colombia	Ecoflora S.A.S Corporation Colombia	N/A
Denmark	Borean Pharma A/S Pharmaceuticals and Biotechnology	Public funding Private funding (VC syndicate)
India/ USA	Dr Ashok Gadgil - Durable household Products	Public funding
Indonesia	Indonesian Planters Association for R&D (IPARD), Dept. of Agriculture - Pharmaceuticals and Biotechnology	Public funding
Italy	GEOX S.P.A. - Clothing, Footwear	Debt finance
Japan	Tefco Aomori Co Ltd Chemicals, Clothing and Accessories	Private funding
Japan	Yamanashi Hitachi Construction Machinery Co. Ltd.	Private funding
Nigeria	EAT-SET Industries - Health Care Equipment and Services	Self-financing Public funding Private funding
Nigeria/USA	Bioresources Development and Conservation Programme Pharmaceuticals and Biotechnology	Public funding Private funding
Singapore	iTwin Ptd. Ltd / The Institute for Infocomm Research (I2R) Technology Hardware and Equipment	Public funding Private funding (VC)
UK	Surface Processing Limited Chemicals	Public funding
UK	Faveo Ltd - Clothing and Accessories	Public funding Debt finance refused.
UK	Junkk.com Ltd - Packaging	Public funding
UK	MakMarine - Industrial Engineering	Self-financing Public funding
Zimbabwe	Algorhythm Private Limited Industrial Engineering	Self-financing Private funding including (VC)

Source of data: WIPO IP Advantage Database

Colour-coding Key: Self-financing, Private Finance, Public finance, Debt finance

The pilot study provides quantitative data on the type of financing successfully sourced by international innovating SMEs in their home countries which are all WIPO members and adhere to TRIPS.³⁰⁹

Figure 15 Statistical analysis of the types of finance used

Type of finance	Number of firms	Percentage
Public finance	12	63%
Private Finance	9	47%
Self-financing	4	22%
Debt finance	1	5%

³⁰⁹ The TRIPS Agreement is Annex 1C of the *Marrakesh Agreement Establishing the WTO*, signed in Marrakesh, Morocco on 15 April 1994 to which the UK is a signatory.

In 12 out of the 19 case studies (63%) the evidence shows the importance of public funding in the form of grants and financial assistance to support R&D and other business expenditure. This was closely followed by equity finance which featured in 9 cases (47%); then to a lesser extent, self-financing in 4 cases (22%); and lastly, debt finance obtained in only 1 case (5%). This pattern follows the traditionally held view that early growth stage business primarily rely on public funding. Debt finance features rarely (as predicted). However, in most cases the firms accessed a funding mix. Figure 15 below sets out the statistics depicting the funding mix sourced by the firms.

Figure 16 **Mix of financing types used in the cases studied**

Mix of funding	Number of firms	Percentage
Self-financing only	Nil	0%
Public funding only	5	26%
Debt finance only	1	5%
Private Finance only	4	21%
Self-financing & Public funding	2	11%
Public funding & Private funding	3	16%
Self-financing & Private funding	1	5%
Self-financing, Public funding & Private funding	1	5%

The data reveals only 2 out of the 19 firms even applied for banks loans. Of those 2, only 1 case (5%), the Italian firm GEOX, successfully accessed debt finance. This figure makes the author's argument that debt finance is underused powerful and persuasive. Even more importantly, none of the UK cases studied obtained debt finance, although Faveo Ltd documented that it unsuccessfully applied. It is recommended that UKIPO/BIS collect similar innovating SME case studies to shed more light on debt-finance situation in the UK. In the author's view, it is likely the that firms participating in WIPO's *IP Advantage* database would have described both negative and positive attempts to obtain bank loans as they were directly asked to report on 'their experience in financing their innovations'. A further

outcome of the dataset analysis demonstrates that debt finance did not even feature as part of a funding mix nor was there a single documented instance of patent-backed debt finance. These are the most significant aspects of the *IP Advantage* multi-case study in relation to innovating SMEs and patent-backed debt finance. The results of the *IP Advantage* database analysis are compelling, providing a portrait of the bleak environment facing innovating SMEs. This is preliminary evidence that change is required and that a shift in the innovating SME-lender relationship is desperately needed. Funding is critical to the survival of innovating SMEs as they face unique overheads (discussed in section 3.3) that simply do not exist in other creative businesses. Further, several prototypes are needed to bring the invention to market, a process which can take several years. Commercialisation will take even longer if the new technology “disrupts” existing markets. Yet, it is precisely disruptive technology that has the most positive impact on society in the long term and the biggest returns. These overheads are unique to patent innovation and not required for other types of creative businesses, resulting in a less favourable finance environment for innovating SMEs.

3.6 Implications and recommendations for future research

Over the past decade there has been a growing interest in the SME “funding gap” and how to facilitate access to patent-backed debt finance necessary for innovation firms to grow. The evidence from the *IP Advantage* database analysis confirms that banks are not important sources of credit for innovating SMEs. Large financial institutions are costly to run and are geared to serving the needs of customers for whom the volume of activity justifies the costs of acquiring information about the innovating SME’s prospects, intangible patent assets and ability to repay. Even if one assumes that the cost of ascertaining creditworthiness was not a decreasing function of the borrower’s size and number of years in operation, the cost to the bank per pound (£) loaned is greater for SMEs than for large-scale enterprises. The

difficulties are likely to be greater for innovating SMEs outside the main financial centres. The author feels strongly that debt finance holds significant untapped potential for both innovating SMEs and lenders. The pilot study has clear implications for policy makers, lenders and borrowers despite the small sample size. Innovating SMEs require additional public finance support to enable them access private debt finance. Commercial banks do engage in patent-backed lending to larger firms with significant patent portfolios and other assets, but that lending experience needs to flow downstream to innovating SMEs.

Next we identify how banking capital adequacy requirements impact on patent-backed lending.

3.7 Basel III banking capital adequacy requirements: impact on patent-backed debt finance

Research has identified that the global financial crisis³¹⁰ actually had little to do with traditional banking, commercial lending or, indeed, bankruptcies. In 2008-2009, banks that were vulnerable because they had too much debt simply cut back sharply on their lending. The severe credit crunch was caused by a combination of excessive bank borrowing, thus carrying too much debt, coupled with the rise and fall of “securitized” lending, which enabled banks to originate loans but then repackage and sell them on coupled with a lack of transparency.³¹¹ In response, bank regulators imposed tighter restrictions. Josef Ackermann, then CEO of Deutsche bank, asserted in an interview that tighter restrictions on bank borrowing “would restrict [bank’s] ability to provide loans to the rest of the economy. This reduces growth and has negative effects for all.”³¹² However, Admati and Hellwig argue that Ackermann’s suggestion that a choice must be made between economic growth and financial

³¹⁰ Supra [24]

³¹¹ Final Report of the National Commission on the Causes of the Financial and Economic Crisis of in the United States (January 2011) *The Financial Crisis Inquiry Commission Pursuant to Public Law 111-21* Washington, DC at p xvii; Ferguson, N. (2012); Admati, A. and Hellwig, M. (2013) p4

³¹² Josef Ackermann im Gespräch: ‘Ohne Gewinn ist alles nichts’ interview *Süddeutsche Zeitung* (2009)

stability, rather than have both, is unnecessary. Instead they ask, “why would restrictions on bank borrowing have any effect on bank lending at all?”³¹³ In 2010 the British Bankers’ Association (BBA) claimed that tighter new regulations would require UK banks to “hold an extra £600 billion of capital that might otherwise have been deployed as loans to businesses or households.”³¹⁴ Admati and Hellwig comment that although this statement sounds reasonable, it is misleading due to the use of the word “capital”. They explain further:

In the language of banking regulation, this word refers to the money the bank has received from its shareholders or owners. This is to be distinguished from the money it has borrowed. Banks use both borrowed and un-borrowed money to make their loans and other investments. Un-borrowed money is the money that a bank has obtained from its owners if it is a private bank or from its shareholders if it is a corporation, along with any profits it has retained. Elsewhere in the economy, this type of funding is referred to as equity. In banking, it is called capital.

Capital regulation requires that a sufficient fraction of a bank’s investments or assets be funded with un-borrowed money. This is similar to the requirement that a home buyer make a minimum down payment when buying a house. Having a minimal ratio of un-borrowed funds relative to total assets is a way to limit the share of assets that is funded by borrowing. Because un-borrowed funds are obtained without any promise to make specific payments at particular times, having more equity enhances the

³¹³ Admati, A. and Hellwig, M. *The Bankers’ New clothes: What’s wrong with Banking and What to Do about It* (2013) Princeton University Press, p5

³¹⁴ ‘Tighter Banking Rules Will Drain £1tr from Financial System Study Shows’ (10 July 2010) This was raised before the G20 in June 2010, referring to a preliminary report prepared by PricewaterhouseCoopers, at the banking industry’s request.

banks' ability to absorb losses on its assets.³¹⁵

The BBA's statement implies that capital requirements are about how much a bank borrows and that capital is a "cash reserve" that banks hold and must not use to make loans. In reality, capital regulations set out only what percentage of the fund they use must be un-borrowed. Therefore, as demonstrated by Admati and Hellwig, the BBA's statement that tighter capital adequacy regulations would *require* UK banks to "hold an extra £600 billion of capital" does not make sense. The implication that loans to businesses or households are automatically reduced by that £600 billion is incorrect. Rather, capital requirements do not prevent banks from lending and have no automatic effect on bank lending. If capital requirements are increased or are higher for loans against intangible assets, there is nothing in the regulation that prevents corporate banks from issuing additional shares and raising new funds to make loans they might find profitable. Capital regulation does not force banks to reduce their capacity to make loans. Viable banks can increase their reliance on un-borrowed funds without any reduction in lending.

This is an extremely important argument that innovating SMEs and government policy makers need to vigorously make to the BBA who would assert that tighter regulation prevents them from lending. The nature of the capital adequacy requirements mandated by Basel III (the Third Basel Accord) with which banks need to comply when lending against intangible assets is discussed further below.

Basel III is the third in a series of comprehensive reform measures developed by 27 member countries of the Basel Committee on Banking Supervision, to strengthen the regulation, supervision and risk management of the global banking sector. It includes a global, voluntary regulatory standard on capital adequacy. It originated in response to

³¹⁵ Supra Admati [312] pp5-6

deficiencies in banking regulation that emerged during the global financial crisis.³¹⁶ The aim is to make banks better placed to absorb financial shocks in the long term, by increasing the size of capital reserves a bank must hold against losses.³¹⁷ Under the new reforms, banks must progressively reach a minimum solvency ratio of 7% per cent by 2019. The solvency ratio is calculated by dividing Regulatory Capital by Risked Weighted Assets. Before Basel III the solvency ratio was 2%. The new 7% minimum is being phased in and implementation is now extended to 31 March 2018.³¹⁸ Under Basel III, intangibles are rated as riskier types of assets and are treated as lower quality security. The definition of capital means that intangibles (e.g. patents) must be deducted from the regulatory capital. As such, intangible assets are not usually counted toward the loan's security because these intangible IP assets are considered too difficult to value.³¹⁹ Set out below is the regulatory adjustment to be applied to Common Equity Tier 1 regulatory capital according to the Basel Committee for Banking Supervision:

Goodwill and other intangibles (except mortgage servicing rights)

67. Goodwill and all other intangibles must be deducted in the calculation of Common Equity Tier 1 capital, including any goodwill included in the valuation of significant investments in the capital of banking, financial and insurance entities that are outside the scope of regulatory consolidation. With the exception of mortgage servicing rights, the full amount is to be deducted net of any associated deferred tax liability

³¹⁶ Supra [24], [310]

³¹⁷ 'International Regulatory Framework for Banks (Basel III): Capital' (June 2011) *Basel Committee for Banking Supervision, Bank for International Settlements*

³¹⁸ 'Basel III: A global regulatory framework for more resilient banks and banking systems' (December 2010, Revised June 2011) *Basel Committee for Banking Supervision, Bank for International Settlements* pp6-23

³¹⁹ 'Using Patents as Collateral Can Free Up Funds for Growing Businesses' at <http://www.ipnav.com/blog>

which would be extinguished if the intangible assets become impaired or derecognized under the relevant accounting standards.³²⁰

Basel III includes a voluntary bank loan rating standard which indicates the degree of risk regarding timely payment of the bank facility being rated. The guidelines also require banks to provide capital on the credit exposure as per the credit rating assigned by approved credit assessment institutions. The implication of Basel III on patent-backed debt finance is the higher level of “risk-weighting” that applies to intangible assets in contrast with other forms of assets such as cash or currency that are zero risk. If loans are secured against intangibles such as patents, the bank is legally obliged to make appropriate capital adequacy provision. This is unhelpful with respect to nurturing the development of patent-backed lending. In simple terms, Basel III regards intangibles as “toxic” assets that should be treated carefully.³²¹

Basel III capital regulation is perceived by banks to be a major barrier to the development of patent-backed lending in the UK. Yet, Richard McCarthy, UK head of banking at KPMG said, “We have to remember that banking requires risk-taking, yet in the rush to clean up the past, both banks and regulators have lost sight of this.”³²²

Capital adequacy requirements should not be a barrier to lending *per se* as demonstrated by Admati and Hellwig.³²³ In their analysis, capital regulation does not force banks to reduce their capacity to lend, rather lenders need to increase their reliance on un-borrowed funds. Greater understanding of the implications of capital adequacy requirements, intangible asset risk weightings and improved dialogue between the stakeholders is

³²⁰ Supra [316] p21-22

³²¹ Definition of Basel III, Financial Times Lexicon at <http://lexicon.ft.com/term?term=basel-iii>

³²² Eccles, L. ‘How bank lending fell by £365 Billion in five years’ (7 September 2014)

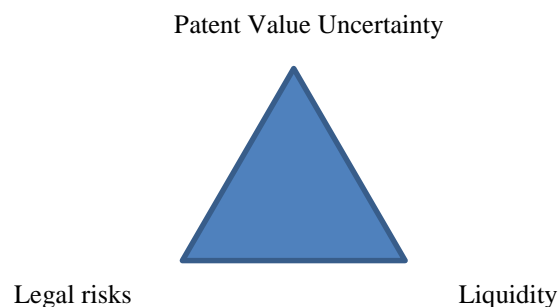
³²³ Supra Admati [312]

necessary. The impact of Basel III on intangibles and commercial lending should be addressed by future research carried out by a multi-disciplinary panel of experts, beyond the scope of this thesis.

3.8 The lenders' triad of concerns: uncertainty, risk and liquidity

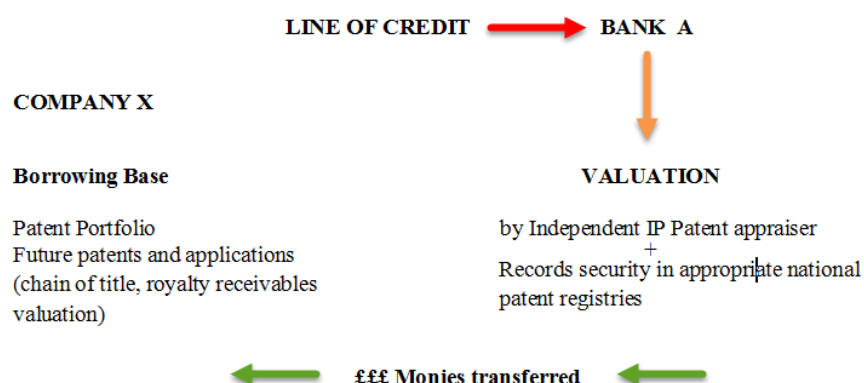
When an innovating SME approaches a lender to apply for a loan (debt finance to grow), the typical response is that “IP doesn’t count” for the reasons explained above. In addition, the lender has a well-established triad of concerns when carrying out a credit appraisal: (1) uncertainty of valuation; (2) legal risks; and (3) liquidity as illustrated below.

Figure 17 Lenders' Triad of Concerns



This thesis focuses on the initial stage of credit appraisal, when the innovating SME’s patent assets are identified and then quantitatively and qualitatively valued, although it is acknowledged that legal risks and liquidity issues form part of a comprehensive credit appraisal. The mechanics of a simple patent-backed debt finance transaction are set out in Figure 18 below.

Figure 18 **Example of a secured transaction involving a patent portfolio**



At the outset of the credit appraisal, a key area of uncertainty from the lender's point of view is that nothing exists to quickly tell the lender how to value the patent or small patent portfolio. This results in uncertainty and impacts on the level of legal risk assigned to the particular patent asset. A determining factor in the decision to lend is the availability of security, especially in the case of innovating SMEs with no established track record.³²⁴ Further, small firms are most likely to fail and produce the least asset recovery value.³²⁵ This demonstrates the importance of available security - the lender needs more relevant accurate information about the innovating SME's patent(s) and the potential to generate an income stream to lend prudently and appropriately. If the valuation is favourable and the lender proceeds with the patent-backed loan, then creating an effective security interest in the patent(s) is a primary concern. Exploring the nature and historical basis for the patent financial valuation problem is the subject of Chapter 4. In the next section, the legal risk arising from the UK procedure for lenders to register notice of their security interests in patents is examined.

³²⁴ 'Finance for Small Firms' (1999) Bank of England Sixth Report, p25

³²⁵ 'Corporate insolvency in the UK: A Decade of Change' (2002) *Association of Business Recovery Professionals Tenth Report*, p9

3.9 Registering security interests in patents

Banks are unwilling to lend significant sums of money to small companies on an unsecured basis. The distinction between secured and unsecured lending is important because of the enhanced legal rights afforded the secured creditor relative to an unsecured creditor. This section examines the existing UK legal framework and outlines the specific legal issues and risks arising when using patents and/or patent applications as security.

The starting point is the PA 1977 which qualifies a patent as personal property,³²⁶ a registrable right that can be used to secure obligations. The PA 1977 and the Patents Rules 2007 (SI2007/3291) also govern the security interest voluntary registration regime for UK patents which are registrable in the specialist UK Register of Patents (the Patents Register). The Patents Register is maintained by the Comptroller-General of Patents, Designs and Trade Marks at the UKIPO.

In general, the key concepts in the field of secured transactions: (1) creation of the security interest; (2) registration, and (3) priority. “Creation” is the process by which the lender obtains security interests in the debtor’s assets via a security agreement documenting the terms and conditions. “Registration” is the process by which the lender ensures that, by giving notice, its security interest will be effective against third parties – especially against the insolvency administrator or other creditors of the debtor. “Priority” means the relative rights of one creditor with a security interest in the debtors’ asset vis-à-vis other creditors with claims to the same asset.³²⁷

3.9.1 Secured vs unsecured transactions

A lender contemplating a loan transaction with the innovating SME will carry out certain actions to protect its position as a creditor. Secured creditors are those who, in

³²⁶ Section 30(1) PA1977

³²⁷ Flack, J.H. ‘Secured Transactions: Practical Things Every Business Law Should Know About UCC Article 9’ (March 2011) *American Bar Association Newsletter*

addition to having a contractual right to sue the innovating SME for the return of any money owed, have taken a property interest in one or more items of the company's property as security for the credit they have made available to the borrower.³²⁸ The customary security devices include: the possessory lien, pledges, the mortgage and equitable charges.³²⁹ In practice, in relation to IPRs and patents, according to Tosato:

The creation of an equitable charge requires neither transfer of ownership of the [patent(s)] taken as security nor delivery of possession... Rather, it is a 'shadow' cast over the collateral until the obligation is discharged or the security is realized. This legal device has a linear structure and offers great flexibility with regard to the type of property which can be used and the rights and remedies it can offer to the lender. In practice the security agreement creating the may be drafted as a deed, providing the secured lender with both a right of sale and a right to appoint a receiver in the event of default. For these reasons, the charge is compatible with IPRs and appears to be the most efficient security device available in English law.³³⁰

The creation of an equitable charge is the most efficient security device to protect the lender in a patent-backed secured transaction involving patents and innovating SMEs.³³¹ There two types of charges: fixed charges and floating charges. A charge places an encumbrance on the secured asset to the value of the outstanding debt. In English law no simple legal definition of a fixed charge exists.³³² A fixed charge, (sometimes called a

³²⁸ Supra McLaughlin [277] p442

³²⁹ 'Registration of Security Interests: Company Charges and Property other than Land' (2002) *Law Commission Consultation Paper No 164* at paras 2.6-2.19

³³⁰ Supra Tosato [113] p95

³³¹ The situation may differ for international patents as the relevant jurisdiction may not permit equitable charges, only mortgages or may have other security device regimes in place.

³³² Supra McLaughlin [277] p443. In *Illingworth v Houldsworth* [1994] AC 355, an insolvency case concerning the taking of a security interest over a company's assets with a floating charge, Romer LJ held that the key to a floating charge, as opposed to a fixed charge was that the company can carry on its business with assets subject

specific charge) is a property interest in specific property (e.g. patent applications or granted patents) preventing the owner of the property (the innovating SME) from selling it or otherwise dealing with it without first either paying back the sum secured against it; or securing the consent of the chargeholder (the lender). A floating charge is security taken over one or more specified assets, present and future, which allows the innovating SME to carry on its business in the ordinary way in relation to those assets, including removing any assets from the security, until such time as the security is enforced.³³³

3.9.2 Secured versus unsecured creditors on insolvency

The existence of a property interest usually permits the chargor (the lender) to take possession of the asset (patents) in certain circumstances thereby removing it from the company's assets available to a liquidator to distribute rateably amongst those creditors who have only contractual rights against the innovating SME (unsecured creditors). This is how reducing the lender's risk facilitates the lending of money.³³⁴

For example, if the innovating SME cannot pay its debts as and when they fall due, it is insolvent and unless the company has a realistic opportunity to obtain additional funding enabling it to repay its debts and trade out of insolvency, it will likely enter into insolvent liquidation.³³⁵ The innovating SME will be wound up (liquidated) and its assets distributed amongst its creditors. At this point, creditors (the lender) cannot bring legal actions to enforce debts owed to them but must rely on the liquidator to distribute their fair share of the innovating SME's assets as determined by the legally dictated order of distribution.³³⁶ An unsecured lender will rank alongside all other unsecured and non-preferential creditors (trade

to the charge. Further, Lord Macnaghten held at p358, "[A charge that] without more fastens on ascertained and defined property capable of being ascertained and defined."

³³³ Supra McLaughlin [277] p174

³³⁴ *Re Brightlife Ltd* [1987] Ch 200 at s16.3.3

³³⁵ This is an insolvency procedure, administration is also an option.

³³⁶ See Chapter VIII Insolvency Act 1986 and the *pari passu* principle.

and judgment creditors, HM Revenue & Customs) when the liquidator distributes the innovating SME's assets. However, if the loan is secured, the lender's rights in relation to the innovating SME are both contractual and proprietary. Not all those with a property interest have the right to take possession of the charged property. Floating chargeholders, for example, generally do not have the right to take possession of the charged property (although their rights are greater than those of unsecured creditors).³³⁷

In summary, the principal reason why the lender should take a security interest in the innovating SMEs asset(s) is so that it will have priority over competing creditors if the innovating SME becomes insolvent. Further, a security interest in the patent(s) may also afford the lender the valuable right to sell or license the patent(s) and apply the proceeds to repay the debt, although this right is likely to be subject to an automatic stay, on the innovating SME's insolvency, from which the lender would be required to seek relief. However, this will depend on the insolvency procedure in question. If liquidation, the secured creditor is entitled to enforce his right over his own property.³³⁸ If administration, the secured creditor cannot take steps to enforce the security unless the administrator consents or the court gives leave.³³⁹ The point is that if the lender has registered a security interest in the innovating SMEs patent asset(s), it will be in a much stronger position to recover monies to repay the loan than it would as an unsecured creditor. However, simply ensuring priority for creditors is not the only important issue at stake:

The control rights provided by security will be important to a financier and this is especially the case with technologically-driven SMEs as the line between equity and debt finance may become blurred. When [an] SME is in financial difficulty, creditors

³³⁷Supra McLaughlin [277] p442. Note however that the loan contract may give the lender a right to take possession of the collateral or to appoint a receiver particularly where there is a fixed charge.

³³⁸ *Re David Lloyd & Company* (1977) 6 CH D 339; *Re Aro Company Ltd* [1980] CH 1986.

³³⁹ Paragraph 43, Schedule B1 Insolvency Act 1986

care about issues of management capability or the threat of the business over-extending itself. A security interest gives creditors a voice in these decisions.³⁴⁰

Consequently there are a myriad of advantages for both the innovating SME in offering its patent assets as security and to the lender in taking security over same.

3.9.3 Fixed and floating charges: advantage and disadvantages

Fixed and floating charges each have advantages and disadvantages in a patent-backed lending transaction. Legal protection via a fixed charge is exceptionally attractive to a lender. Indeed, banks go out of their way to characterise charges as fixed charges, seeking to establish the stronger rights of a fixed chargeholder in the event of the innovating SME winding up.³⁴¹ Identifying the patents at the outset of the credit appraisal will assist lenders to take appropriate controls over registered patent applications and granted patents. Such controls would improve the lender's position in a distress situation. The essence of a fixed charge is that control over dealing with the charged property (the patents) rests with the lender (bank / creditor / charge / chargeholder).³⁴² However, without knowledge of the existence or details of specific patents, lenders may simply do nothing and not recognise the security potential of patents at all.

Alternatively, with general information disclosed by the innovating SME that it owns patent rights, lenders may take a floating charge over one or more specified classes of assets, present and future (eg patents, business' inventory or accounts receivable). The floating charge was invented by Victorian lawyers to enable manufacturing and trading companies to raise loan capital on debentures.³⁴³ The innovating SME is free to carry on business in the

³⁴⁰ Supra Davies [109] p563

³⁴¹ *Re Spectrum Plus* [2005] UKHL 41

³⁴² Ibid

³⁴³ *Re Brightlife Ltd* [1987] Ch 200 per Justice Hoffman

ordinary way in relation to those assets, including removing any assets from the security. A non-payment by the borrower causes the charge to “crystallise” at which point it is converted into a fixed charge.³⁴⁴ The lender can then take steps to enforce (sell) the secured assets to recoup the funds advanced to the borrower. The risk to the lender is that by this time the specific patent assets may have already been sold or left to lapse or been further charged, limiting the lender’s potential to recover financial value from those assets.³⁴⁵ A lender is always free to take a risk when lending, but the law will not protect the lender if the risk materialises. The preferred option for the innovating SME is a floating charge over its personal property (patent applications and granted patents) so that it can continue to deal with the patent portfolio in the ordinary course of business without the lender’s consent.

However, a problem with the floating charge in contrast to a fixed charge, from the lender's point of view, is that on insolvency any realisations from the sale of the collateral are available to pay: a) preferential debts;³⁴⁶ b) the prescribed part;³⁴⁷ and the expenses of the procedure,³⁴⁸ before the security holder. In other words, the value of the security is less than a fixed charge because other stakeholders have to be paid first. The fixed charge, on the other hand, is invulnerable to these, and other “weaknesses” of the floating charge. The main question for a lender is which type of equitable security is preferable when dealing in patents. The fixed charge appears to be the better option, considering some of the vulnerabilities of the floating charge on insolvency, particularly when dealing with SMEs which have a greater risk of insolvency than more established companies.³⁴⁹ The fixed charge gives the lender stronger security (better priority) as it is paid ahead of preferential creditors and not subject to a deduction under the *Enterprise Act 2002* contra the floating charge. Having said that,

³⁴⁴ Supra McLaughlin [277] pp445-446

³⁴⁵ Supra *Banking on IP?* [18] p14

³⁴⁶ s.175 Insolvency Act 1986

³⁴⁷ s.176A Insolvency Act 1986

³⁴⁸ s.175(2), 176ZA Insolvency Act 1986

³⁴⁹ s.175, 176A & 245 Insolvency Act 1986

reliance on a fixed charge only, leaves the lender without the option to appoint an administrator in the event of the borrower's insolvency (although fixed charge receivership might be available).

When deciding whether to establish fixed or floating charge(s) the lender should consider the extent of the innovating SME's patent portfolio needed to secure the loan. Although fixed charges have clear advantages in the event of the innovating SME's insolvency, they only cover the existing patent applications and granted patents on the Patent Register as documented in the loan security agreement (e.g. GB123456, GB9876554). The lender cannot take a fixed charge over future property e.g. a patent application that does not yet exist. A floating charge has the advantage that it works to "catch" all of the innovating SME's asset classes (all patents present and future) including, for example, a new patent application created after the date of the security. Thus, a lender who seeks to "catch" future patent applications and granted patents may prefer to create a floating charge. At the early stage of its business lifecycle, an innovating SME may well be contemplating registering new patent applications.

In practice, a lender can combine both types of charges, seeking to combine the priority advantages of the fixed charges with the flexibility of the floating charge in a carefully documented loan security agreement. Once the type(s) of security is agreed and validly created by the security agreement, it is binding as between the innovating SME and the lender, and no transfer of title to the relevant patents or patent applications is required. The lender should then proceed to register the security.

3.9.5 Registering security interests: where patent, company and insolvency law meet

The gist of the problem for patents as an asset class (and other registered IP assets such as trade marks and designs) is that presently there are two security registers for

recording property interests in patent assets used as security and this can give rise to “priority dilemmas”. First, notice of the security interest should be registered on the Patent Register under s33 PA 1977. Secondly, as an innovating SME is company the security interest should also be registered at Companies House as required by ss859 A – Q, CA 2006.³⁵⁰ This is problematic as the specialist Patent Register alone (an external legal factor) cannot be considered a one-stop source of information. This gives rise to a degree of legal uncertainty for the lender when searching the Patent Register for competing interests and registering its own security interests.

In practical terms, checking the security register(s) for competing interests is an aspect of the lenders’ due diligence³⁵¹ which involves fees, human resources and time, all of which contribute to the transaction costs for the patent-backed loan which are passed on to the borrower in one form or another. Consequently, simplifying and streamlining the procedure for recording security interests in patent assets is needed to improve access to patent-backed debt finance. However, reforming the system is not straight forward. It involves a complex analysis of UK secured personal property law, IPR and patent law, company and insolvency law which converge to regulate security interests in patents. The Secured Transaction Law Reform Project (currently being led by Professor Louise Gullifer of Oxford University) is considering how to improve the system and will be discussed in section

³⁵⁰ A charge is defined in s 859A(7) CA 2006 and registration requires a statement of particulars (s859D). Registration is voluntary – there are no criminal sanctions for non-registration (c.f. the old regime) – and can be effected by either chargor or chargee, but if it is not effected the charge is void against the administrator, liquidator or creditor of the company.

³⁵¹ In the patent-backed loan context, due diligence also refers to the care a reasonable person should take before entering into a security agreement or a transaction with another party. In particular, financial due diligence involves the lender investigating or carrying out an audit of the potential patents and/or patent applications being proposed as collateral for the loan to confirm all material facts in connection with the viability of the assets, including whether they are already encumbered. An encumbered asset is owned by one party but subject to the legal claims of another party, whereas a lender will prefer to deal with an unencumbered asset.

3.9.11.³⁵² Legal formalities in respect of the two relevant security registers in the UK are discussed below.

3.9.6 The specialist Patents Register

The general rule of priority is that the first creditor to register obtains priority as to the security (collateral). However in the UK, security interests in respect of patents or patent applications take priority according to the date on which they were registered in the Patents Register, regardless of whether or not the security was also perfected by registration at Companies House.³⁵³ This is important for lenders to understand – they need to engage with two registration systems, namely, the Patents Register and Companies House.

3.9.7 When a competing interest exists

For a lender to protect its position, as a matter of due diligence during the credit appraisal process it should verify whether any competing interests encumber the patent assets offered as collateral by the innovating SME. If a search of either register reveals an earlier competing interest, would the lender proceed with the transaction? According to the author's discussions with Dr Sandra Frisby³⁵⁴ the answer depends on the estimated value of the patent(s) and whether an agreement could be reached between lender 1 and lender 2 to subrogate lender 1's security to that of lender 2. In the right circumstances if the patents are of sufficient value to cover both lenders' loans and costs, this is a possibility. Nevertheless, the existence of a prior ranking security interest would be problematic for lender 2 and increase its risk. However, the possibility of lending against patents on fixed charge security, if lender 1 has only a floating charge over the patents, should also be considered. In any

³⁵² See <http://securedtransactionslawreformproject.org/about-secured-transactions-reform/>

³⁵³ Bezant, M. and Punt, R. 'The Use of Intellectual Property as Security for Debt Finance' (1997) *Intellectual Property Quarterly* 297; Henry, M. 'How Effective is Your Security over Intellectual Property?' (1991) *Journal Business Law* 507

³⁵⁴ Associate Professor in Corporate and Insolvency Law, The University of Nottingham.

event, it is crucial for the lender to acquire an indisputable position in terms of priority. The Patent Register plays a decisive role in this regard.³⁵⁵

3.9.8 Registering a charge over a patent application or granted patent

A lender is advised to register the charge at the UK Intellectual Property office first. This is because the granting of security over a UK patent or patent application is a registrable “transaction, instrument or event” under s.33 PA 1977. A failure to register the fixed charge at the UKIPO would mean that a subsequent assignee, licensee or chargee of the patent would take free of charge if they were not aware of the fixed charge. A security interest in respect of a patent or an application for a patent is registrable in the Patent Register under ss 32(2) and 33(3) PA 1977 using Form 21. Completing Form 21 is straightforward and should contain the following information:

- the patent number or patent application number;
- the security provider(s) and the secured party (ie names, addresses and Patents ADP numbers if known);
- the nature of the security;
- the date of the security document and the name of the applicants’ agent and their address for service.³⁵⁶

An application to register a security interest in respect of a patent can simply be posted to the UK IPO and should contain:

- a copy of the security document (an original is not required) if the Form 21 is not signed by the security provide or its representative;
- a fee sheet ie Form FS2; and

³⁵⁵ Supra Tosato [113] p97

³⁵⁶ Chapter 31 *Manual Patent Practice*, UKIPO

- the appropriate fee.

Registration is voluntary and there is no time limit for registration, but as a matter of best practice the security should be registered as soon as possible.³⁵⁷ The most important outcome of registering a security interest is on priority between competing security interests. Thus, a security interest registered on the Patent Register will bind any party which acquires a security interest in the same patent at a later date. If a security interest is not registered, it will not bind another secured creditor which later acquires a conflicting security interest without knowledge of the existing unregistered security interest.³⁵⁸ There are also certain practical administrative benefits of registration on the Patent Register that flow to the chargee where it becomes owner of the patent by virtue of the security (e.g. by an assignment by way of security). The chargee will receive patent renewal notices (to ensure that patent does not lapse)³⁵⁹ and notices of proceedings concerning the patent.³⁶⁰ Further, the chargee (as registered owner of the patent) will be entitled to be awarded costs in any proceedings.³⁶¹ Whereas, if the chargee has not registered its security on the Patent Register, it will only be entitled to be awarded costs in any proceedings for infringement of the patent if:

- it was not practicable to register its security within the six-month period beginning on the date of the security document; or
- if the court or Patent Comptroller is satisfied that it was not practicable to register the security before the end of the 6 month period but the security was registered as soon as practicable thereafter.

³⁵⁷ SI 2007/3291, r 44(6) The Patent Rules also provide that notice of any security interest should be entered in the Patent Register as soon as possible after the security interest is granted

³⁵⁸ Section 33(1) PA 1977

³⁵⁹ SI 2007/3291 r39

³⁶⁰ SI 2007/3291, r77

³⁶¹ Section 68 PA 1977

3.9.9 A floating charge over present and future granted patents and applications

If the lender takes a floating charge over not only the patents but the company's other business assets, it will have the power to appoint an administrator with authority to run the business if the company defaults on the loan.³⁶² The lender will typically also have the power to appoint a receiver to the patents subject to the charge enabling the lender to sell the patents or collect the income generated by the patents via licences in order to repay the loan.³⁶³ The lender will typically request the innovating SME to guarantee that it has the right to grant the security and that the patents are free from other charges, encumbrances or other rights exercisable by third parties.³⁶⁴ Further, the lender will seek to ensure that the value of the charged patents are maintained and may seek to place obligations on the firm in respect of the security agreement e.g. a general obligation to maintain the patents and patent application (pay any applicable renewal fees) without any right to allow unimportant patents to lapse, or to abandon patent applications and the ensuing cost implications. The innovating SME may wish to reserve the right to allow to lapse or abandon the patents or patent applications it reasonably considers are no longer of value. The definition of the innovating SME's obligations under the security agreement should be carefully worded to determine whether or it has an obligation to assert granted patent rights against an infringer, as this often provokes a challenge to the validity of the patent rights.³⁶⁵

3.9.10 The Companies Register

The registration regime for security created by a UK company is governed by CA 2006, Pt 25 is optional but the consequences of non-registration are severe on insolvency.

³⁶² Insolvency Act 1986, Schedule B1, para 14

³⁶³ Note the receiver will not be an "administrative receiver".

³⁶⁴ Supra Tosato [113] p99

³⁶⁵ 'Taking Security over Patents' (March 2014) *Taylor Wessing* at <http://www.taylorwessing.com/synapse/march14.html>

The register is maintained by the Registrar of Companies at Companies House.³⁶⁶ Section 859D CA 2006 makes it clear that a charge over any intangible or incorporeal property, such as an IP right, can be registered: s859D(e)(ii) CA 2006. This includes any patent or any licence under or in respect of any such right. Where a UK company creates security of a patent right, the security is perfected by registration within 21 days of its creation at Companies House. The registration process simply involves submitting the prescribed form together with a certified copy of the security agreement (charging document) which can be done online through the Companies House portal.³⁶⁷ Failure to register security over a patent right at Companies House in the correct way and on time will mean that the security is void against a liquidator, an administrator or a creditor of the security provider.³⁶⁸

The relationship between the two registers in respect of patent-backed security operates to achieve different aims with respect to each register. Where security over a patent is created, registration on the Patent Register safeguards the priority of the security, whereas the security is perfected by registration at Companies House. This ensures that the security will be valid in the event of the innovating SME's insolvency and against other creditors of the SME.³⁶⁹ Failure to register on the Patent Register does not make the security interest void in the event of the innovating SME's insolvency. Rather, it puts the security at a disadvantage to competing security taken by other secured creditors without notice of the existing security.³⁷⁰ In contrast, failure to register security at Companies House seriously undermines the value of that security for many practical purposes because it will be void

³⁶⁶ As as amended by CA 2006 (Amendment of Part 25) Regulations 2013, SI 2013/600.

³⁶⁷ Denoncourt, J. 'Reform to the UK Company Registration of Charges Scheme, CA 2006 (amendment of Part 25) Regulations 2013 (SI 2013/600)' (2013) Vol. 22 *Nottingham Law Journal*, pp 138-140

³⁶⁸ 'Perfecting security over intellectual property rights and registering security at an intellectual property register' LexisPSL Banking & Finance; s859H CA 2006.

³⁶⁹ Graham, P. 'Registration of Company Charges' [2014] *Journal of Business Law* 175

³⁷⁰ The priority of perfected security is always determined by the normal rules on priority.

against the liquidator, an administrator or a creditor of the innovating SME.³⁷¹

Using patent rights can be trouble-free, provided the lender is cautious when creating the security interests. Registering the charge over the patents on both registers is a straightforward exercise in practice. However, potential problems may arise if the lender has to confirm whether competing interests encumber the patents as the Patent Register alone cannot be considered a one-stop source of information and there is a degree of legal uncertainty.³⁷² This means that lenders need to carry out preliminary due diligence and subsequently, over the course of the negotiations, monitor both registers. Once the security agreement with the innovating SME has been finalised, the lender must register it on the Patent Register and on the Company Register. The costs associated with carrying out searches of the two registers and registering notice of security quickly mount up. An extra layer of cost applies to patent assets that do not arise in respect of other assets, especially if the lender needs to deal with numerous patents and applications. Further, as the procedures are not routine, the lender may require specialist legal advice.

3.9.11 The Secured Transaction Law Reform Project

Lenders and their legal advisors are simply not at ease when registering security interests over patent assets. The recent Intellectual Property Act 2014 did not take the opportunity to address the issue of harmonising the specialists IPR security registers³⁷³ or modernising the legal framework governing security interests over IPRs. Presently, no government agency such as the UKIPO, Companies House, BIS or the BBA publish a practical yet comprehensive user guide for registering notice of security interests in patents or other IPR. No doubt stakeholders in the finance community would find such a guide beneficial. In Tosato's view, the law relating to the use of IPRs as security should be:

³⁷¹ s859H CA 2006; Supra Graham [361]

³⁷² Supra Tosato [113] p99

³⁷³ Specialist registers also exist for registered trade marks and designs

... analysed thoroughly in the context of a reform proposal for secured transactions. These rights require specific and detailed provisions, clearly defining the impact that the security interest encumbering them will have on their exploitation and enforcement; for instance, the law should define the circumstances under which a secured creditor has a right to pursue infringers of an encumbered IPR in order to protect its value.³⁷⁴

Tosato identifies the creditor's right to pursue infringers of an encumbered patent as an important issue that remains to be addressed. The purpose of the project, which is clarified below, is broader than security in IPR, which is only one of many issues being evaluated:

The current law of secured transactions has clear strengths but, in comparison to that in many leading economies around the world, it is out-of-date and cumbersome. It is difficult to access, complex and, in many respects, unclear. It is true that practitioners and financiers have developed ways of working around the most egregious problems, and of limiting uncertainty by the use of contractual devices. However, this has the effect of increasing the cost and availability of credit and means that we do not have the most efficient system we could have. The project therefore exists to examine how the current position could be improved.³⁷⁵

Essentially, the thrust of the project is to consider the adoption of a “notice filing” system approach to the registration of security interests, with priority determined by the date

³⁷⁴ Supra Tosato [113] p101

³⁷⁵ See <http://securedtransactionslawreformproject.org/the-case-for-reform/>

of filing. Would this approach facilitate IP-backed lending? The benefits of such a system (similar to that adopted by the US, Canada, Australia, New Zealand, Jersey, Malawi, Ghana, Liberia, Sierra Leone and Qatar) were set out in the Law Commission Consultative report No.176: the PPSA regime, which is now complete.³⁷⁶ It refers to IP and patents, but gives no extensive account. The Law Commission's 2004 Consultative Report is a starting point for discussion.³⁷⁷ The key feature of a "notice filing" regime is that there would be a single type of security interest, to which the same rules of registration, priority and enforcement applied. Perfection, whereby the interest is made valid against other creditors and in the debtor's insolvency, would be either by registration, possession or control. Registration could be in advance of creation and priority would be by date of perfection. While the floating charge would no longer be a distinct type of security interest, a security agreement could provide that the debtor could dispose of assets, and the scheme would provide that purchasers of cash and goods which the debtor usually sold would automatically take free of any security interest. The position on insolvency, were the floating charge to cease to be a distinct type of security interest, is being considered by one of the working groups.³⁷⁸ A "Security in IPR" working party has been established to make recommendations.

By way of comparative system example, the Commonwealth of Australia introduced the *Personal Property Securities Act 2009* (PPSA 2009) to provide more certain and less costly arrangements for personal property security through:

³⁷⁶ These jurisdictions share the common features of what have come to be known as Personal Property Security Act (PPSA) schemes. Originally, the Canadian and New Zealand PPSAs were modelled on Article 9 of the US Uniform Commercial Code. These Acts have themselves become the model for reform in other jurisdictions, such as Australia. The UNCITRAL *Legislative Guide on Secured Transactions* has been a tool in recent reforms in Malawi and Ghana.

³⁷⁷ <http://securedtransactionslawreformproject.org/reform-in-the-uk/history-of-reform/>

³⁷⁸ Gullifer, L. 'Personal Property Security Law: Where Next?' (2012) *Butterworths Journal of International Banking and Financial Law* 465 and 541

- (1) its application to any interest in personal property, whether tangible or intangible, that secures payment of a debt or the performance of an obligation, regardless of the form of the transaction; and
- (2) the introduction of a single online register dealing with registration of all security interests over personal property in Australia, with the implication that parties need only review one register in order to understand what registered security interests exists over the collateral.³⁷⁹

The Australian PPSA 2009 established a centralised electronic public register to reduce the uncertainties in creating, registering and searching for security interests held over personal property (including patents and patent licences) in that jurisdiction. The new register superseded a number of overlapping legal frameworks and specialist registers. In addition to creating a national register of personal property securities, the PPSA 2009 sets out rules regarding the creation, enforcement and priority of securities, which are significantly different from the rules under previous legal frameworks.³⁸⁰ As a result of the new legal regime, records on IP Australia's³⁸¹ specialist patent register no longer have legal priority. The breadth of the PPSA 2009 holds significant interest for the UK from comparative system point of view. Its impact on finance and security is broad, applies to all types of personal property and uses a "substance over form" approach.³⁸²

According to the author's discussions with Graham Ferris,³⁸³ UK priority rules are not "one size fits all" hence the complexity vis-à-vis notice filing systems. The UK system can be haphazard as to which interests obtain the best legal protection - in essence the UK system

³⁷⁹ 'Ensuring creditor protection is Asia-Pacific construction projects Part II: Property Securities law in the Asia-Pacific Region' (2013) *DLA Piper*

³⁸⁰ Macneil. C. 'Personal property securities and intellectual asset management: thinking outside the box' (27 August 2014) *Intellectual Asset Management*

³⁸¹ The equivalent of the UKIPO in Australia.

³⁸² Supra Macneil [379]

³⁸³ Reader in Law, Nottingham Law School, Nottingham Trent University

rewards those who use private law to protect themselves (e.g. freedom of contract). Those who can afford to pay for specialist legal advice are at an advantage. On the other hand, the UK system has certain flexibilities and can take advantage of market innovations that would involve amending legislation in a notice filing system to adapt the statutory system. In Ferris' view, this inherent flexibility led to the UK declining to introduce a notice filing system in the early 21st century for several reasons. First, banks and their professional legal advisors wanted to retain a system with which they were familiar. Secondly, a "notice filing" system is anathema to German law. As the UK is part of the EU and has a stake in the company law harmonisation agenda, interaction with other key secured transaction law systems is now more prominent. Finally, a notice filing system disorders English property law (either requiring a complex set of exceptions, or forcing the general law to fall into line with the commercial system to create a new congruence relating to concepts of notice filing law). Consequently, the reform of personal property security law in the UK has foundered several times and there is a conceptual chasm between the UK Patent Register and a "notice filing" style system.

In conclusion, without the ability to offer valuable security the innovating SME will find it difficult to borrow funds at all. Offering patents as security should ensure that the terms of the loan will be better than an unsecured loan.³⁸⁴ However, the interaction between UK IP law, personal property security law, company law and insolvency will need to be improved if patent-backed debt finance is to flourish in an economically efficient manner. The author holds the view that to enhance access to patent-backed lending, a PPSA notice-filing" system is superior in theory, although not a magic bullet, as the priority advantage is granted because of its functional quality. The importance of reforming secured transactions law to permit filing notice of a security interest in a patent via a single personal property

³⁸⁴ Phillips, J. 'Intellectual Property as Security for Debt Finance—A Time to Advance?' (1997) EIPR 276

security register cannot be underestimated. The “Principle of Least Effort” says that it is human nature to want the greatest outcome for the least amount of work (efficiency). In theory, lenders will choose their behaviour based on the minimization of effort. This can be viewed as interactions between jobs needing to be done (registering security), and tools developed to accomplish them.³⁸⁵ Preferably, the single register would be maintained by Companies House. This would simplify, streamline and ultimately make the system more efficient, accessible and less costly for all stakeholders in the patent-backed secured transaction. Innovating SMEs, their accountants, lenders and legal advisers are used to dealings with Companies House, as opposed to dealing with the UKIPO and its specialist registers and legislation. Streamlining the security registration process would not preclude the introduction of new or specialist rules to cover patents, trade marks or designs. The author agrees with Bezant³⁸⁶ and Davies,³⁸⁷ who advocate a single register “notice filing system” that embraces IPR for ease of use, reducing risk and enhancing certainty and argues further that these advantages reduce loan transaction costs (which are passed on to the borrower), outweighing the disadvantage of any loss of flexibility, whilst acknowledging that PPSA systems are not without difficulties.

3.10 Conclusion

This chapter has illustrated why debt finance remains critically important to innovating SMEs despite the availability of other finance options. The analysis of 19 case studies reported in the WIPO *IP Advantage* database confirmed that patent-backed debt finance did not feature at all for innovating firms. We identified that lenders need to develop

³⁸⁵ Zipf, G.K. *Human Behavior and the Principle of Least Effort* (1949) Addison-Wesley

³⁸⁶ Supra Bezant [108]

³⁸⁷ Supra Davies [109] p57

more awareness and trust in patent assets as a class, leading to a higher level of risk tolerance at the credit appraisal stage. We then examined two important barriers to the take up of patent-backed debt finance by lenders: (1) the problem of banking capital adequacy requirement for intangibles; and (2) the legal risks involved in searching for competing interests in patents and registering security interests in them. These are serious problems, but they are rooted in banking regulation and secured transaction law which can be improved and are not an inherent function of the usefulness, monopoly advantage or economic value of the inventions protected by the patents. No stakeholder appears to be seriously examining reform to the banking capital adequacy requirements and the negative impact on intangibles and IPR assets such as patents in the lending environment. This is an area ripe for further research. As for registering security interests over IPR, a reform agenda is underway that will likely improve the situation for lenders. However, the author reiterates the need for the government to create a “Security over IPR Guide” for lenders which currently does not exist to facilitate patent-backed lending.

In Chapter 4, the focus shifts to the problem of the uncertainty in valuing patents, the most problematic of the lenders’ triad of concerns. The fact that patents are difficult to value does not mean they have no value. This is an accounting problem and, increasingly, a corporate governance problem.

4 True and fair patent valuation: a corporate governance issue?

The debate about the purpose and significance of the 'true and fair view' corporate reporting concept is associated with two well-known dichotomies in accounting: principles versus rules and substance over form.³⁸⁸

Introduction

Accountancy dominates patent valuation. As such, the accounting discipline is a macroeconomic instrument of formidable proportions in the realm of patent-backed finance. Section 4.1 begins our multi-disciplinary analysis that focuses on accounting principles and standards as they relate to the financial recording and valuation of patent assets aiming to explain why patent assets are unseen, underused and undervalued.

Banks, as the main providers of corporate financing, use accounting and financial statements as a kind of internal control that impacts on lending decisions. However, while the evolution of the credit and debit system that forms the basis of traditional accounting has been indispensable to the efficiency and material prosperity of the modern economy, financial innovation is urgently needed in relation to accounting for intangibles, especially patent assets. We analyse why traditional accounting methodology is inadequate for dealing with patent assets. Why is patent value seemingly unmeasurable and therefore largely invisible in the financial statements?

Section 4.2 critically analyses why the key methods for valuing intangibles are inadequate and unhelpful in the case of patent assets. It has never been more necessary to be able to measure the objective value and subjective quality of patent assets. Only when innovating SMEs have access to credit, granted by lending institutions who understand the

³⁸⁸Albu, C.N., Albu, N. and Alexander, D.J.A. The True and Fair View Concept: A Case Study of Concept Transferability (14 April 2009) p3 at SSRN: <http://ssrn.com/abstract=177000>

full value and quality of patents as a form of currency, unit of account or as a store of value, will patent owners be able to access the funds they need to commercialise their inventions and share them with the world. Adequately valuing patents and commercialising inventions is a fundamental corporate governance issue for patent innovating firms.

Accounting standards coupled with the rise and harmonization international accounting standards that affect the recording and valuation of patents are a key factor inhibiting access to money for businesses to grow. Section 4.3 explores the intersecting relationship between the requirements of International Accounting Standard for Intangibles (IAS 38), the characteristics of legal patent monopolies and the changing concept of corporate governance under the rubric of “shareholder value”. In particular, a traditional legal analysis of whether there is scope to depart from IAS 38, in light of the UK’s longstanding legal requirement that a company’s financial accounts must provide a “true and fair” view, is carried out.

In section 4.4, our multi-disciplinary analysis discusses the emergence of a new form of corporate reporting and enhanced disclosure, the Intellectual Capital Statement (ICS). The ICS treats patents and other intangibles as capital rather than expenditure and are increasingly being used in other jurisdictions (e.g. Denmark and Sweden) to enhance intangibles reporting. The ICS, or a similar type of narrative report, would assist the development of patent-backed finance by providing lenders with additional timely, relevant and accurate information concerning a borrowers’ patent assets to improve credit appraisal.

A thorough exploration of these fundamental issues enables us to critically analyse possible measures to reduce the level of uncertainty inherent in recording, valuing and the corporate reporting of patent assets (applications and granted patents) to improve the quality of information available to lenders.

4.1 The invisibility of patents on the balance sheet

Accounting statements provide information that shape a particular understanding of a business. However, accounting principles rely on two inherent assumptions, firstly that tangibles rather than intangibles contribute to business performance and secondly, that business depends largely on an arm's length transaction between a willing buyer and a seller. Neither of these assumptions accommodates the nature of patents.³⁸⁹ IP is not separately identified and valued for the purpose of incorporation into financial accounts within the UK.³⁹⁰ This section explains how patent assets are presented in financial statements and highlight the problems involved when accounting for intangibles.

Despite the fact that the underlying value of patent assets has soared in the past decade, this increase in value remains largely invisible to the financial world if the patented invention has been developed “in house” as opposed to having been acquired (purchased) from a third party. By way of introduction, in the UK and many other countries, intangible assets such as patents, brands, customer relationships, information technology and knowhow are accounted for in one way if they are created in-house (internally generated) and another if acquired (purchased).³⁹¹ Intangible assets have been variously defined, but the common thread of the definitions is that these assets provide future benefits but do not have physical embodiment. The “invisibility” of internally developed patented inventions and other intangible assets makes them difficult to measure and helps to explain why their value is recorded ‘off balance’ sheet and does not form part of the financial statements. This means that if the patented invention is developed in house by the innovating SME, it is not recorded in the company's balance sheet and is not evidenced in the company's financial statements.

³⁸⁹ Supra Ghafele [115] pp521-530

³⁹⁰ Supra Bezant [108] Pre-1960s business assets mainly comprised tangible assets listed in the borrowers' financial statements. Verification was achieved by viewing the assets, checking receivables and reviewing debt instruments.

³⁹¹ Conversely, for a bank, its loans are considered assets and are recorded on its balance sheet.

Rather it is immediately expensed, thus appearing as a loss, rather than as revenue. Further, these costs are reported only at a single point in time. Therefore internally generated patent assets are valued at little more than the patent attorney and patent filing fees, because the research is deducted as an expense, and not capitalised. In contrast, patent assets that are purchased are recorded at fair value using the purchase price and the assets are amortised accordingly.

With intangible patent assets dominating so much of our modern economy and the renewed drive to support and invest in new technology, surely it is appropriate to question why patent assets developed internally within a company are still largely off balance sheet items in UK businesses, both small and large? As a matter of corporate governance, this issue warrants detailed examination. Figure 19 below illustrates the increasing financial value attributable to IP.

Figure 19 Distribution of value for the Apple iPhone in 2013

The iPhone demonstrates how the value of ideas and patented inventions is steadily increasing. Although the iPhone (a tangible item) is wholly assembled in China, this activity results in only 28% of the profits. Indeed, only 28% of the value of the iPhone is earned by materials and labour input. Seventy-two per cent (72%) of the value is earned by the technology and brand owners (intangible IP).

	Share of profits on iPhone sales
Technology and brand: Apple	58%
Technology inputs: US, European Union, Taiwan, Japan, South Korea, others	14%
Materials	22%
Labour, non-China	4%
Labour, China	2%

Source: Kramer, Linden and Dedrick (2008, 2011, 2011). Australian Intellectual Property Report 2013

It no longer makes sense that the intangibles a company develops itself are valued “at cost” because the research is deducted as an expense, whilst assets that are

purchased at arm's length are recorded at "fair value". This accounting treatment results in inconsistency and makes it very difficult to compare the corporate finance of patent developers versus patent acquirers. For example, the different accounting treatment means that a patent developed by Company X and then sold to Company Y can change from a very low valuation to a high valuation, possibly worth hundreds of thousand or even millions of pounds, overnight. According to Professor Abraham Briloff,³⁹² this accounting difference could result in distorted market behaviour, tempting companies to buy patents rather than developing the inventions themselves.³⁹³ Indeed, is this accounting practice what paves the way for the non-practising entities (the patent trolls)? The author holds the view that if internally developed intangibles are not visible on the balance sheet they should be documented in a new form of financial report, at an amount that more fully captures the costs of the R&D and the value of the patent portfolio to the business. The object of financial reporting, which the detailed accounting standards are designed and assumed to achieve, is to present a "true and fair" view of financial position of the entity at a particular point in time. Ultimately, the law evaluates what is "true and fair". However, neither of these approaches has yet to be accepted by the accounting standards bodies although there is increasing interest in intangibles accounting reform and several countries are permitting voluntary ICS reporting. Accounting creates currency. This in turn will enable patents to be more effectively and commonly used loan security.

Firms that conduct R&D and file patents have significant intangible assets, yet these are substantially recorded as off-balance sheet assets and liabilities.³⁹⁴ The

³⁹² Professor Emeritus of Accountancy at Baruch College, US.

³⁹³ This factor is largely driving the patent aggregating firms as discussed earlier in Chapter 2 of this thesis.

³⁹⁴ London-based 'Mediafinance Group' reported that banks refused to make a significant loan for a film project available because the driving factor, an intangible copyright, appeared as a loss on the profit and

reason for this lies in the formal accounting distinction between “on” and “off” balance sheet items. In general terms, an item should appear on the company’s balance sheet if it is an asset or liability that the company owns or is legally responsible for. Patent ownership is a fairly straightforward matter to prove by confirming the records held by the Patent Office. However, as the value of internally developed patent assets is regarded as “uncertain”, traditional accounting principles provide that in order to be recorded on the balance sheet, the patent assets must also meet the tests of being:

- (1) probable;
- (2) measureable; and
- (3) meaningful.

This is the crux of the difficulty in accounting for patent assets. To date, internally generated patents have been regarded as complex to value and as such their value is inadequately financially recorded for modern purposes, resulting in a lack of financial transparency. From the lenders’ point of view, this “invisibility” creates a key problem in that nothing exists on the financial statements (documents that they are familiar with) to quickly tell the lender how to value the firm’s internally developed patent applications or patent portfolio. As a result, the undesirable level of uncertainty from the lenders’ perspective is a formidable barrier which prevents favourable lending decisions being made. In order to lend appropriately, a lender needs relevant accurate information to value the patent asset as a form of security. In the UK, banks adhere to the *Lending Code* which is monitored by the independent Lending Standards Board (LSB). Certain standards are expected in connection with the assessment of

earnings statement – disclosed by the CEO of Mediafinance at the Association of Chartered Certified Accountants (ACCA), Roundtable Discussion on the Creative and Innovative Economy held in London, 12 March 2009 at ACCA.

lending applications by “micro-enterprises”³⁹⁵ i.e. very small innovating SMEs. The lender will assess whether the micro-enterprise can afford to repay the money borrowed and, according to the Code, this may include reviewing:

- why the applicant wants to borrow the money;
- the business plan and accounts;
- the business’ cash flow, profitability and existing financial commitments;
- any personal financial commitments which may affect the business;
- how the applicant has handled its finances in the past;
- information held by credit reference agencies, and possibly landlords.

The lender will also carry out credit assessment techniques such as credit scoring and consider any security provided. Unfortunately, for the lender to assess patents as security, relevant useful financial information is lacking (or largely invisible) on a firm’s balance sheet. Further details of the firm’s patent strategy, surrounding IP and know how are not a required feature of the borrowers’ company annual return and business review.³⁹⁶

At this point in time in the accounting field, the future value of a potential 20-year patent monopoly largely lies in the murky realm of uncertainty, as opposed to calculable risk. Uncertainty undermines value. However, it is the accounting profession that has the power to define the currency of patents and other intangible assets in the accounting standards that apply to financial statements. The next section examines how accountants value patents and why this creates uncertainty for lenders.

³⁹⁵ Micro enterprises are small businesses with a turnover of no more than 2 million Euro per annum and with fewer than 10 employees.

³⁹⁶ Section 854 CA 2006 requires every company to submit an annual return to Companies House. This gives basic information about the company on a particular date, its return date, every year.

4.2 Uncertainty and patent valuation

Any uncertainty as to the borrower's ability to repay a loan is highly undesirable. For a lender, uncertainty is quite a different concept from that of risk because without some degree of certainty, one cannot begin to mathematically calculate risk. In 1921, Frank Knight argued that:

Uncertainty must be taken in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated...A measurable uncertainty, or 'risk' proper...is so far different from an unmeasurable one that it is not in effect an uncertainty at all.³⁹⁷

In 1937, John Maynard Keynes³⁹⁸ made a similar point to Ferguson. By "uncertain knowledge," Keynes wrote, "The sense in which I am using the term is that in which the prospect of a European war is uncertain, or...the rate of interest twenty years hence...About these matters there is no scientific basis on which to form any calculable probability whatsoever. We simply do not know."³⁹⁹ Continuing our discourse on the concept of uncertainty, Peter Bernstein⁴⁰⁰ explained:

We pour in data from the past...but past data...constitutes a sequence of events rather than a set of independent observations, which is what the laws of probability demand.

³⁹⁷ Knight, Frank, H. (1911) as quoted in Ferguson, N. *The Ascent of Money: A Financial History of the World* (2012) Penguin Books, p344

³⁹⁸ John Maynard Keynes, 1st Baron Keynes (5 June 1883 – 21 April 1946) was a British economist who is widely considered to be one of the founders of modern macroeconomics and the most influential economist of the 20th century.

³⁹⁹ Keynes, J. M. 'The General Theory of Employment' (1937) 51, 2 *Economic Journal* p214

⁴⁰⁰ Peter L Bernstein (January 22, 1919 – June 5, 2009), a well-known American financial historian, economist and educator developed the efficient market hypothesis.

History provides us only with one sample of the...capital markets, not with thousands of separate and randomly distributed numbers.⁴⁰¹

Is the present and future value of patents doomed to be unmeasurable and therefore uncertain? The “uncertainty” factor that still surrounds the techniques and practices of quantitative and qualitative patent valuation is the principal barrier to the development of patent-backed lending. The core function of the lender is gathering information to reduce uncertainty about the borrower’s ability to repay the loan. What financiers need is a reliable method of “measuring” and recording the value of the patent. Patent valuation is a complex task as there are many variables to consider thus the traditional view is that each patent is so entirely unique that there are no other, or an insufficient number, to make it possible to chart enough similar patents to form a basis for any inference of value about any real probability.

4.2.1 Inadequacy of current accounting for intangibles and the need for reform of accounting practices

In 2005 the WIPO recognised that current accounting standards are ill-equipped to address the IP dimension of business and issued the following statement:

Clearly, the various challenges associated with determining the value of internally held intellectual property, paired with the inherent volatility associated with the value of some forms of IP, can be cited as major reasons why accounting has been reluctant to report on internally generated IP, which is seen as too subjective and risky.

Furthermore, accounting has always been reluctant to anticipate future gains,

⁴⁰¹ Bernstein, Peter, L. *Capital Ideas Evolving* (2007) John Wiley & Sons, New York

overstate the value of assets or include assets on the balance sheet whose value is more volatile.⁴⁰²

Dr Roya Ghafele, a law and economics scholar, studied the language and terminology of accounting as it applies to IP and specifically intangibles. She concluded:

Accounting constitutes a very specific form of language, which is highly standardized, mathematical in nature and seeks to uniformly and systematically describe events... On the balance sheet, IP experiences a specific form of authorisation. It is represented in the discourse of accounting by 'intangibles', an imprecise term associated with the increasingly observed 'gap between the market and book value', while current accounting systems are determined by a tangible assets' based perspective and offer little scope to document how IP relates to business performance. Accounting may thus be seen as a gate keeper of the status quo that poses significant challenges for IP-rich companies, confronted with the challenge to either communicate around the lingua franca of accounting or accept that under current accounting statements they cannot adequately document how IP relates to their business performance.⁴⁰³

A brief discussion of the history of double-entry bookkeeping will illustrate why the traditional accounting criteria is ill-adapted to recognising and valuing intangibles. This research provides a deeper understanding of the practical reasons that lead to uncertainty with when accounting for intangible patent assets and IAS 38.

⁴⁰² Ghafele, R. 'Getting a grip on accounting and intellectual property' (2005) WIPO SME Newsletter at <http://www.wipo.int/sme>.

⁴⁰³ Supra Ghafele [115] pp521-530

4.2.1.1 History of double-entry bookkeeping

Ideas that revolutionised the way Europeans counted and accounted for their assets were introduced by Italian *Renaissance* mathematician, Leonardo of Fibonacci in his ground-breaking book *Liber Abaci*, “The Book of Calculation” published in 1202, in which he introduced Europe to the decimal system and showed how it could be applied to commercial bookkeeping. His ideas eventually led to the birth of banking in the late 13th century.⁴⁰⁴ Fibonacci also introduced the concept of present value (the discounted value today of a future revenue stream).⁴⁰⁵ Historically, the double-entry book keeping system, which forms the basis for modern accounting principles and is globally accepted, was simply a tool to track and document the exchange of tangible items and prevent embezzlement. The method of preparing and presenting financial business information used by accountants, the double entry book keeping system, is set out in Figure 20 below and illustrates the debit and credit system of modern double-entry bookkeeping.

Figure 20 The double-entry bookkeeping system

Debits and credits are numbers recorded as follows:

Account Type	Debits	Credits
Assets	Increase	Decrease
Liabilities	Decrease	Increase
Income (revenue)	Decrease	Increase
Expenses	Increase	Decrease
Capital	Decrease	Increase

Source: Adapted from Atrill, P. and McLaney, E. *Accounting & Finance for Non Specialists* (2012) (8th ed.) Pearson

⁴⁰⁴ Modern fractional reserve banking allows the creation of credit and hence of money.

⁴⁰⁵ Goetzmann, W. N. ‘Fibonacci and the Financial Revolution (March 2004) NBER Working Paper 10352

In double-entry bookkeeping all transactions in the accounts are entered *twice*: once as a debit and once as a credit. Debits increase balances in asset accounts and expense accounts, and decrease balances in liability accounts, revenue accounts, and capital accounts. Credits increase balances in liability accounts, revenue accounts, and capital accounts, and decrease balances in asset accounts and expense accounts. The *golden rule of accounting* is founded on the accounting equation:

$$\text{Owner's Equity} = \text{Assets} - \text{Liabilities}$$

If at any point the sum of debits for all accounts does not equal the corresponding sum of credits for all accounts, an error has occurred. It follows that the sum of debits and the sum of the credits must be equal in value. In essence, the accounting equation serves as an “error detection tool” by making it a record of historical transactions. In case of error, each debit and credit can be traced back to a journal and transaction source document, thus preserving an audit trail. The double-entry bookkeeping system was originally designed to prevent fraud and misappropriation by employees of the *Renaissance* merchants of Venice.⁴⁰⁶ Broadly speaking, the root of the problem is that modern accounting has difficulty dealing with intangibles because such assets do not fit the socio-historic evolution of accounting. This is because when a patent is applied for and becomes a form of property (an asset of the innovating SME and thus a form of currency) and there are few, if any, historical market transactions to record in the accounts. However, the expenditure involved in getting to the patent filing stage is recorded. Thus part of the equation is missing in the balance sheet.

The next significant development in the history of accounting was the “accrual” method based on recording transactions. Income items are recorded when they are earned

⁴⁰⁶Supra Ferguson [396]

and deductions recorded when expenses are incurred. Therefore, modern accrual accounting still requires financial transactions to be recorded as they occur, creating an accurate record of all historic transactions. This historic information is then also largely used to confirm sales and cash flow trends. The nature of innovation leading to patents being filed and granted a few years' later does not map well onto the accrual method of recording of transactions. Nevertheless, although patents are valuable business assets, this value is not gleaned from the company's financial statements.

In essence, the accrual accounting system relies on a set of fundamental assumptions and principles which have become known as “generally accepted accounting principles” (GAAP). Fundamental accounting principles therefore shape a very particular perception of intangibles, which in turn shackles the fullest use of patent assets as security for loans. It is important for those working with patents in a commercial context to have an understanding of these accounting principles because financial terminology and practice permeates the exploitation and commercialisation of patented inventions. A basic knowledge of GAAP provides both context and illumination for any transaction in which patents feature. The main principles relevant to this discussion that underpin modern accounting rules, standards and practice and have been adopted by the Financial Accounting Standards Board (FASB) forming the basis for how intangible assets are treated in financial statements, are briefly summarised below.⁴⁰⁷

First, the *revenue principle* or *realisation* principle provides that revenue (income) is earned when the sale is made, typically when goods or services are provided. A key element of the revenue principle in relation to the sale of tangible assets is that revenue is earned when legal ownership of the asset passes from seller to buyer.

⁴⁰⁷Nelson, S.L Understanding the Basic Principles of Accounting (2011) *Quickbooks*

Second, the *expense principle* provides that an expense occurs when the business uses goods or receives services. The business incurs an expense when goods or services are received.

Third, the *matching principle* correlates to the revenue and the expense principles. It provides that when revenue is recognised, one should match related expenses associated with the revenue. *Accrual-based accounting* is the application of the three principles. Basically, it means that one records revenue when a sale is made and records expenses when goods are used or services are received.

Fourth, the *cost principle* provides that figures recorded in the accounts should be quantified (measured) using historical cost. For example, if a firm owns a vehicle, the cost of the vehicle is the purchase price and not the current fair market value for the vehicle. The value of the vehicle as recorded in the accounts is not adjusted for changes in fair market value.

Fifth, the *objectivity principle* provides that accounting measurements and accounting reports should use objective, factual and verifiable data. This means that accountants, accounting systems and accounting reports should rely on objective data rather than subjective data. This is why an accountant always uses objective data (even if it poorly reflects the full commercial value of a patent) rather than subjective qualitative data relating to the future potential of the patent.⁴⁰⁸

These five concepts provide a basic, but important understanding of aspects of the foundation on which accountants prepare financial statements that deal with assets, both tangible and intangible. The diverse range of stakeholders that have an interest in the financial position of an entity leads to a logical division in the discipline of accounting. “Financial accounting” is designed to enhance external reporting to third parties (such as

⁴⁰⁸ <http://www.qfinance.com/accountancy-checklists/the-ten-accounting-principles>

lenders). In contrast, “managerial accounting” is concerned with collating information for internal management. Financial accounting more broadly targets a range of third parties, including lenders, who do not control the actual preparation of financial statements and reports, nor do they have access to the underlying detail. The ability to understand and have confidence in the reports is directly dependent on the standardisation of accounting principles and practices that are used to prepare them. Without such standardisation, the financial statements of different companies would be difficult to understand and even more difficult to compare.

4.2.1.2 The credit appraiser’s approach to the borrower’s financial statements

The credit appraiser uses the traditional financial statements differently to the accountants. They want the entity’s financial statements to help them assess the ability of the business to repay the principal sum borrowed with interest. The credit appraiser’s approach to the potential borrower’s traditional financial statements, the balance sheet and the profit and loss account is explained below:

The Balance Sheet is a stock concept, while the Profit and Loss Account is a flow concept. The former indicates the state of a business as on a particular date, while the latter tells us how the present state has come into being. The two together finally tell us how the funds flowed through the business during a given period. The accounting system first evolved the balance sheet, followed by the Profit and Loss Account at a much later date. In fact, the Balance Sheet of a business is never static, in spite of its being labelled as such. The Balance Sheet is a total concept, while the Profit and Loss Account is a partial concept... the reason why the Balance Sheet has received so much attention of lenders [is] not only to see whether the loan stands secured, but also

to examine whether the value of the business is rising or not. The Profit and Loss Account tells us more about the operating management of the business, while the Balance Sheet indicates the efficiency of financial management. The ratios calculated between a stock variable (Balance Sheet) and a flow variable (Profit and Loss Account) enable us to estimate the overall efficiency of a business.⁴⁰⁹

Thus credit appraiser's evaluation of the potential borrower's financial statements goes beyond checking to see if the loan stands secured; he also examines whether the value of the business is rising or not. Supplementary qualitative information about patent assets will assist to answer the lender's second question. This is where corporate narrative reporting law has an important role to play. Further, there is a risk that funds loaned to a business will be used for purposes that have not been agreed. Accounting information is also used to check that the funds have been properly applied in the appropriate manner and that the terms of the loan agreement are being adhered to.⁴¹⁰ Information contained in financial statements should reduce uncertainty over the financial position and performance of the business. Having said that, accounting is a developing subject and we still have much to learn about user needs, specifically those of lenders. Under company law provisions, a qualifying SME need only submit "abbreviated accounts", namely a balance sheet and no profit and loss account which immediately creates an "information gap" for lenders.⁴¹¹ An analysis of the legal requirements and accounting standards that apply to financial statements in the context of UK corporate reporting ensues.

⁴⁰⁹ Bhattacharya, H. *Banking Strategy, Credit Appraisal and Lending Decisions: A Risk-Return Framework* (2010), Oxford University Press p256

⁴¹⁰ Atrill, P. and McLaney, E. *Accounting & Finance for Non Specialists* (2002) (3rd ed.) Pearson, p3

⁴¹¹ s 447(1) CA 2006

4.3 The intersection of accounting and company law

In the 1970s the EU initiated two directives on the harmonisation of rules of accounting, the Fourth and Seventh Directives⁴¹² which made it clear that accounting is at the centre of company law and thus a field of highest importance for corporate lawyers. However, a further impetus harmonising accounting rules was the introduction of International Accounting Standards (IAS) including IAS 38 Intangibles which determines the accounting treatment of patents. In sections 4.3.1 - 4.3.4 we introduce how the IAS operates within the UK corporate law system. In section 4.3.5 we examine the detailed provisions of IAS 38 and consider the impact on patents. Section 4.3.6 introduces UK company law financial reporting requirements and the “true and fair” view concept. Section 4.3.7 asks whether financial statements prepared according to IAS 38 provide a “true and fair” view as required by law and, if not, whether there is scope to depart from IAS 38.

4.3.1 European and UK rules of accounting

In the UK, Generally Accepted Accounting Practice (GAAP) is the body of umbrella regulation that establishes how company accounts must be prepared by UK companies. This includes accounting standards and UK company law. Indeed, “generally accepted accounting practice” is a defined statutory term in the UK’s tax legislation. The main piece of legislation that governs financial reporting in the UK is the *Companies Act 2006* (CA 2006) which incorporates the requirements of European law and sets out the minimum corporate reporting requirements for UK registered companies. For example, the Act requires limited companies to file their accounts with the Registrar of Companies, who then makes them available to the public (accessible to lenders). This means that every UK

⁴¹² See Medhurst, D. (1994) 145-147 detailing the harmonisation directives.

company (except very small companies which are exempt)⁴¹³ need to prepare the accounts for submission to Companies House. Section 386 CA 2006 requires every company to keep adequate accounting records to show and explain the companies' transactions and the directors must prepare accounts for the company for each of its financial years.⁴¹⁴ Individual company accounts comprise a balance sheet (as at the last day of the financial year) and a profit and loss account. The annual accounts must give a "true and fair view" of the state of affairs as at the end of the financial year and of the profit and loss for the financial year of the company according to ss396 and 494 CA 2006. In complying with the CA 2006, the accountants who prepare the accounts adhere to UK GAAP or practices which necessitate the basic accounting concepts briefly outlined in section 4.2. Accounting standards derive from a number of sources. In the UK, the chief standard-setter is the Accounting Standards Board (ASB), which issues standards called *Financial Reporting Standards* (FRS). The ASB is part of the Financial Reporting Council (FRC), an independent regulator.

4.3.2 IAS and the new UK GAAP – legal effect in the UK

Cross border commercial transactions make international accounting standards a necessity.⁴¹⁵ IAS are referred to as International Financial Reporting Standards (IFRS), although the term IAS is used in practice. Since 2005 it has been a legal requirement that all listed⁴¹⁶ European companies report under the IFRSs.⁴¹⁷ In the UK, unlisted companies still have the option to report either under the IFRS or under UK GAAP. Section 50 of the *Finance Act 2004* redefines "generally accepted practice" to include both EC- adopted IAS and UK GAAP for periods beginning on or after 1 January 2005 (the date in the EC

⁴¹³ s 447(1) CA 2006

⁴¹⁴ s 394 CA 2006

⁴¹⁵ *Where Internet Meets Geography*, at 268 (2000) (contemplating the effect that Internet globalisation will have on global accounting standards).

⁴¹⁶ UK registered companies whose securities are admitted to trading on a regulated market in the EU.

⁴¹⁷ Adopted by EC 1725/2003

Regulation). The vehicle of such introduction on a community wide basis is Regulation 1606/2002 (the “IAS Regulation”), which provides for the procedure whereby IAS are to be adopted and sets out the financial statements to which they must be applied.⁴¹⁸ Broadly, the use of IAS is mandatory for the consolidated accounts of listed companies whose securities are admitted to trading on a regulated market. Although our focus is innovating SMEs, the IAS still make an impact as they are the basis for UK national standards. In recent years the differences between the two sets of standards (UK GAAP and IAS) have been streamlined.

In March 2013 the FRC (the body responsible for issuing UK accounting standards) issued FRS 102, the Financial Reporting Standard applicable in the UK. This followed the issue of FRS 100 Application of Financial Reporting Requirements and FRS 101 the Reduced Disclosure Framework in November 2012. Together these standards comprise the “New UK GAAP”, which take mandatory effect for accounting periods commencing on or after 1 January 2015.⁴¹⁹

4.3.2.1 The IFRS for SMEs and micro-sized entities

At its September 2003 meeting, the IASB decided that it should develop accounting standards appropriate for SMEs and that development of IASB SME standards should start by extracting the fundamental concepts from the IASB *Framework* and the principles and related mandatory guidance from IFRSs and related Interpretations. To that end, on 9 July 2009 the IASB issued *IFRS for Small and Medium-sized Entities*. On 26 July 2012, IASB announced that IASB staff, together with the SME Implementation Group, would develop guidance suitable for micro-sized entities that are applying the IFRS for SMEs. On 27 June 2013 IASB issued this guidance, which accompanies, but is not part of, the IFRS for SMEs. Essentially, the guide extracts from the IFRS for SMEs only those requirements that are

⁴¹⁸ Moore QC, M. Opinion entitled, “True and Fair Requirement Revisited” for the FRC

⁴¹⁹ Crowe Clarke Whitehall LLP Corporate Business Newsletter FRS 102: the new accounting standard for the UK.

likely to be necessary for a typical micro-sized entity, without changing any of the principles for recognising and measuring assets, liabilities, income and expenses. The IASB advises that compliance with this Guide will result in compliance with the IFRS for SMEs. The Guide will no doubt be very useful for micro-sized entities in preparing their accounts in an IFRS-compliant manner. But the issue of the different treatment of internally generated intangible assets remains, thereby continuing to inhibit innovating SME access to patent-backed finance. Figure 21 notes IAS 38 for intangible assets and the equivalent UK Financial Reporting Standard (FRS) 102 which must be applied when preparing and presenting corporate financial statements.

Figure 21 **Comparison between IAS 38 and UK FRS**

IFRS	UK FRS	Subject
IAS 38	FRS 102	Goodwill and Intangible Assets

Section 397 of the UK CA 2006 requires a limited company that submits individual accounts to Companies House⁴²⁰ (this includes SMEs) to specifically state in the notes to the accounts that they have been prepared in accordance with IAS. Further, the audit report (if one is required under CA 2006) must also state clearly whether in the auditor’s opinion, the annual accounts have been properly prepared in accordance with the Act and whether the accounts give a true and fair view of the company’s financial position. The “true and fair” requirements of the CA 2006 will be discussed in section 4.4. In the next section we discuss the legal status of accounting standards.

⁴²⁰ All limited companies in England, Wales, Northern Ireland and Scotland are registered at Companies House, an Executive Agency of BIS. There are more than 3 million limited companies registered in the UK and more than 400,000 new companies are incorporated each year.

4.3.3 The legal status of accounting standards

Are accounting standards law? No, not of themselves. IAS and GAAP are not enacted by parliaments, but by private organisations (usually with government support).⁴²¹ For example, the International Accounting Standards Committee (IASC) is an independent, private sector body, formed in 1973 and restructured in May 2000 with the objective of harmonising the accounting principles used by businesses around the world. IASC members currently number 143 professional accounting bodies in 104 countries representing over 2m accountants worldwide. Accounting standards and principles can be equated with codes of conduct for corporations. However, their status as “law” is fragile because they are not formally enacted, are in a state of flux, and are simultaneously elusive and osmotic.⁴²² The reporting of intangible assets and the relationship between accounting principles, practice and standards has been the subject of intense discussion by accountants for many years.

4.3.4 IAS 38 Intangible Assets

IAS 38 Intangible Assets is at the heart of the issues faced by borrowers who wish to ensure that their patent assets are financially recorded in a way that is both visible and useful to lenders. The first time accounting for intangibles were addressed in a thorough way was in IAS 38, promulgated in 1995 after a long and contentious gestation period that included the issue of two Exposure Drafts. IAS 38 is a comprehensive standard that superseded an earlier standard which dealt solely with R&D expenditures. In summary, IAS 38 outlines the accounting requirements for intangible assets, which are non-monetary assets without physical substance and identifiable (either being separable or arising from contractual or other legal rights). Intangible assets meeting the relevant recognition criteria are initially measured at cost, subsequently measured at cost or using the revaluation model, and

⁴²¹ Grossfeld, B. *Wake Forest Law Review* (Vol.36) pp169-186

⁴²² Ebke, W. *Maerkte machen Rechts- und Unternehmensrecht!* (2000) Festschrift Utter 12

amortised on a systematic basis over their useful lives (unless the asset has an indefinite useful life, in which case it is not amortised).⁴²³ IAS 38 follows a conservative path in its treatment of intangibles along the lines of the US GAAP.

4.3.5 How does IAS 38 allow patent owners to communicate the financial value of intangibles and patents?

IAS 38 establishes recognition criteria, measurement bases, and disclosure requirements for intangible assets. Each of these elements is analysed in further detail below. Additionally, IAS 38 sets out impairment testing⁴²⁴ for intangible assets, to be undertaken on a regular basis. This is to ensure that only assets having recoverable values are capitalised and carried forward to future periods.

According to the IASC, the development of IAS 38 was controversial and gave rise to the debate on two significant issues. First, should internally generated intangible assets be recognised in financial statements? The current IAS 38 confirms that they should be, but only when very strict criteria are met. Second, should there be an arbitrary upper limit on the useful life of intangible assets? In this regard, there is a presumption that the useful life of intangible assets will not exceed 20 years. In relation to patents, this is a non-issue and is more of a concern in relation to other forms of intangibles such as trade marks, designs and copyright. Accordingly, in this thesis, we focus squarely on the first issue.

Next, we refer to the technical summary of the text of accounting standard IAS 38 Intangible Assets issued on 1 January 2012 by the IASB⁴²⁵ as the basis for discussion of the

⁴²³ Deloitte See <http://www.iasplus.com/en/standards/ias/ias38>

⁴²⁴ Impairment testing of assets seeks to ensure that an entity's assets are not carried at more than their recoverable amount (i.e. the higher of fair value less costs of disposal and value in use).

⁴²⁵ <http://www.ifrs.org/IFRSs/Pages/IFRS.aspx>

relevant accounting requirements and critically analyse the provisions from a patent asset perspective:

IAS 38 Intangible Assets - Recognition and Measurement

The recognition of an item as an intangible asset requires an entity to demonstrate that the item meets the: (a) definition of an intangible asset; and (b) recognition criteria. This requirement applies to costs incurred initially to acquire or internally generate an intangible (patent) asset and those incurred subsequently to add to, replace part of, or service the asset. Intangible assets are categorised by accountants as either identifiable or unidentifiable (e.g. goodwill) assets. The “identifiability” test is set out below:

An intangible asset is identifiable if it either:

- (a) is separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so; or
- (b) arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

A patent is therefore recognised as an identifiable intangible asset. A patent may have some physical form as there may be tangible evidence of its’ existence, such as a certificate indicating that a patent has been granted or patent application documents, but this does not constitute the asset itself. Goodwill, on the other hand, cannot be meaningfully transferred to a new owner without also selling the other assets and/or the operations of the business.⁴²⁶

⁴²⁶ The UK FRS 10 takes the view that goodwill arising on an acquisition (i.e. the cost of acquisition less the aggregate of the fair value of the purchased entity’s identifiable assets and liabilities) is neither an asset like other assets nor an immediate loss in value. Rather, it forms the bridge between the cost of an investment shown as an asset in the acquirer’s own financial statements and the values attributed to the acquired assets and

Other identifiable assets can result from R&D activities e.g. a prototype or model, but this is secondary to the idea, knowledge or invention that is the primary result of the R&D activities. It is a fairly straightforward exercise to identify and classify inventions (patent assets), distinguishing them from goodwill. Next, the patent asset must be “recognised”:

Recognition test

An intangible asset shall be recognised if, and only if:

- (a) it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity; and
- (b) the cost of the asset can be measured reliably.

These two limbs of IAS 38 comprise the challenging aspect of the standard in connection with internally generated inventions. When patent assets are purchased or acquired, there is no such difficulty as IAS 38 clearly states that:

The probability recognition criterion is always considered to be satisfied for intangible assets that are acquired separately or in a business combination.

An intangible asset shall be measured initially at cost.

The cost of a separately acquired intangible asset comprises:

- (a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates; and
- (b) any directly attributable cost of preparing the asset for its intended use.

liabilities in the consolidated financial statements. Although purchased goodwill is not in itself an asset, its inclusion amongst the assets of the reporting entity, rather than as a deduction from shareholders' equity, recognises that goodwill part of a larger asset, the investment, for which management, remains accountable. See <https://frc.org.uk/Our-Work/Codes-Standards/Accounting-and-Reporting-Policy/Standards-in-Issue/FRS-10-Goodwill-and-Intangible-Assets.aspx>

In accordance with IFRS 3 Business Combinations, if an intangible asset is acquired in a business combination, the cost of that intangible asset is its fair value at the acquisition date. If an asset acquired in a business combination is separable or arises from contractual or other legal rights, sufficient information exists to measure reliably the fair value of the asset.

In accordance with this Standard and IFRS 3 (as revised in 2008), an acquirer recognises at the acquisition date, separately from goodwill, an intangible asset of the acquiree, irrespective of whether the asset had been recognised by the acquiree before the business combination. This means that the acquirer recognises as an asset separately from goodwill an in-process research and development project of the acquiree if the project meets the definition of an intangible asset.

Thus, acquired patent assets may be capitalised rather than expensed on the balance sheet, putting “patent acquirers” in a positive financial position relative to “internal patent developers”. Reverting to internally generated patent assets, IAS 38 continues as follows:

Internally generated intangible assets

Internally generated goodwill shall not be recognised as an asset.

No intangible asset arising from research (or from the research phase of an internal project) shall be recognised. Expenditure on research (or on the research phase of an internal project) shall be recognised as an expense when it is incurred.

An intangible asset arising from development (or from the development phase of an internal project) shall be recognised if, and only if, an entity can demonstrate all of the following:

- (a) the technical feasibility of completing the intangible asset so that it will be available for use or sale.
- (b) its intention to complete the intangible asset and use or sell it.
- (c) its ability to use or sell the intangible asset.
- (d) how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset.
- (e) the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- (f) its ability to measure reliably the expenditure attributable to the intangible asset during its development.

The cost of an internally generated intangible asset for the purpose of paragraph 24 is the sum of expenditure incurred from the date when the intangible asset first meets the recognition criteria in paragraphs 21, 22 and 57. Paragraph 71 prohibits reinstatement of expenditure previously recognised as an expense.

In other words, expenditure on an intangible item shall be recognised as an expense when it is incurred, unless it forms part of the cost of an intangible asset that meets the recognition criteria; or the item is acquired in a business combination and cannot be recognised as an intangible asset. If this is the case, it forms part of the amount recognised as goodwill at the acquisition date (see IFRS 3). Within the category of internally generated intangibles other than goodwill (such as patents), the patent(s) must demonstrate each and

every one of the requirements set out in (a) to (f) above. There is no discretion to be exercised even if one element is lacking. A key issue is the future economic benefit requirement in (d) mandated by IAS 38. Under IAS 38 an intangible asset is only recognised if it is probable that future economic benefits specifically associated therewith will flow to the reporting entity, and the cost of the asset can be measured reliably. The recognition criteria for intangible assets are derived from the IASC Framework and are similar to the recognition criteria for tangible assets (property, plant and equipment etc). The “future economic benefit” envisaged by the standard may take the form of revenue from the sale of products and services, costs savings, or other benefits resulting from the use of the intangible asset by the firm. If these types of future economic benefit are not available, then the inability to recognise such patent assets causes the firm’s balance sheet to under-report its economic resources – having a negative effect on any lending decision.

Another key element of the test for recognition of intangibles in (f) is also problematic in that the availability of “financial or other resources” to complete the development and to use or sell the intangible asset must be objectively shown. Very few innovating SMEs will be in a financial position to do this, which is why they seek debt finance. This can only lead to a “Which comes first? The chicken or the egg?” debate – in other words, the futility of identifying the first case (e.g. financial resources) of a circular cause and consequence. Meeting the requirements in (f) is a hurdle for innovating SMEs.

In a nutshell, IAS 38.51.67 initially requires the application of a cost approach relation to the valuation of intangible internally generated patent assets. When an internally generated patent asset meets the recognition criteria, the cost is determined using the same principles as for an acquired tangible asset. Thus, cost comprises all costs directly attributable to creating, producing and preparing the asset for its intended use. IAS 38 closely follows IAS 16 Property, Plant and Equipment with regard to elements of cost that

may be considered as part of the asset. This means that the book value at initial recognition is the sum of expenditure incurred from the date when the development phase in relation to the patented invention began. Thus internally developed patents will be recognised at the cost of creation, exclusive of costs which would be analogous to research. Under IAS 38, which must be applied by UK companies, a patent valuation must adopt the cost approach for this valuation purpose. The next part of IAS 38 discusses the concept of financial measurement of the intangible asset, following the recognition process discussed above.

Measurement after recognition

An entity shall choose either the cost model or the revaluation model as its accounting policy. If an intangible asset is accounted for using the revaluation model, all the other assets in its class shall also be accounted for using the same model, unless there is no active market for those assets.

Cost model: After initial recognition, an intangible asset shall be carried at its cost less any accumulated amortisation and any accumulated impairment losses.

Revaluation model: After initial recognition, an intangible asset shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated amortisation and any subsequent accumulated impairment losses. For the purpose of revaluations under this Standard, fair value shall be measured by reference to an active market. Revaluations shall be made with such regularity that at the end of the reporting period the carrying amount of the asset does not differ materially from its fair value.

An active market is a market in which all the following conditions exist:

(a) the items traded in the market are homogeneous;

- (b) willing buyers and sellers can normally be found at any time; and
- (c) prices are available to the public.

If an intangible asset's carrying amount is increased as a result of a revaluation, the increase shall be recognised in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss. If an intangible asset's carrying amount is decreased as a result of a revaluation, the decrease shall be recognised in profit or loss. However, the decrease shall be recognised in other comprehensive income to the extent of any credit balance in the revaluation surplus in respect of that asset.

After initial recognition of the intangible patent asset, it should be carried at its cost less any accumulated amortisation and any accumulated impairment losses. An allowed alternative treatment is "revaluation". As with tangible plant, property and equipment assets under IAS 16, the standard for intangibles permits revaluation subsequent to original acquisition, with the asset being written up to fair value. The requirement of an "active market" as defined in IAS 38 is highly problematic in the field of patents as there is no active regulated market (such as the London Stock Exchange for company shares). Such a market does not yet exist. The traditional accounting position is that a reporting entity will be unable to determine "reliably" (in the sense of objectively as opposed to subjectively) the fair value of a patent asset when comparable market transactions are non-existent, infrequent and when alternative estimates of fair value cannot be calculated.

A further problem for innovating SMEs is that under IAS38, if the intangible patents assets were not initially recognised (i.e. they were expensed rather than capitalised) it will not be possible to later recognise them at fair value. Accordingly, the revaluation option is

unlikely to apply, especially to small businesses. While the IAS 38 comprises further requirements, a discussion of these aspects is unnecessary for the purpose of this thesis.

On the one hand, Gilbert G  lard, Chairman of the IASC Steering Committee on Intangible Assets, has stated that “IAS 38 is a step forward towards the separate recognition of intangible assets for the better understanding by users of financial statements of investments in intangible assets”. On the other hand, the IASC’s former Secretary-General, Sir Bryan Carsberg,⁴²⁷ has clarified that:

Knowledge about intangible assets, particularly how to value them, is still in its early days. IAS 38 reflects the current limits of this knowledge, focusing on reporting the cost of intangible assets. There is growing demand for further information on the value of intangible assets using financial and non-financial indicators, maybe not as part of the financial statements. Debates on the subject are very much alive. IASC will watch the developments in this area and may do more work in the future when preparers and users have gained more experience on the value of intangible assets.⁴²⁸

Critics of IAS 38 hold that Sir Carsberg’s statement delimits rather than extends the possibilities to capitalise intangibles and that the issue of intangibles is still being addressed in an overly conservative manner. According to accounting Professors Ulf Johanson of the University of Lund and Jan-Erik Grojer (deceased) of the Swedish University of Uppsala:

It is important to note that IASC has never approached the issue of how to separate or and label expenses on intangibles; nor has it dealt with the issue of qualitative information about intangibles (...) The conservative approach of the IASC and other

⁴²⁷ From 1995 to 2001, Sir Bryan Carsberg, former Professor of Accounting and Business Finance at the Victoria University of Manchester, served the IASC as Secretary-General.

⁴²⁸ http://www.ii-a.fr/intangibles/international_accountningh.htm

national standard setting authorities is not very surprising. The standard setting bodies are not expected to take the lead in the issue of accounting for intangibles; in complex matters they are supposed to take the position of codifying best practice.⁴²⁹

Dr Ghafele, critiquing IAS 38 and the language of accounting, states that the term “intangible asset” triggers the phrase of the “gap between the market and the book value”, another expression that inadequately communicates about IP.⁴³⁰

Despite these views, it appears that the existing philosophy for the accounting treatment of intangible assets will essentially be continued and the problem of accounting for internally generated patent assets remains. Yet the IAS 38 standard is inappropriate from both a legal and a technological point of view. The author argues that there is no legal or technical difference in substance between a patent that has been internally generated as against that exact same patent which is purchased by a third party and they should not be treated differently in the accounts. In the case of an innovating SME, the value of its patents to the business model is greater than simply what someone else, at this point in early in the business life cycle, will pay for it. In other words, IAS 38 has a greater negative impact on innovating SMEs in the early stage of their business, than on larger more established enterprises that have a strong trading history. The vulnerable position of innovating SMEs is confirmed in the 2014 *IP Valuation Report* which states:

The Expert Group reports that there are limitations on when and how it is possible to place the value of IP assets on the balance sheet of the company. The complexity of

⁴²⁹ In their report of a workshop entitled, “To Manage and Account for Intangibles” held in February 1999, Brussels as quoted at http://www.ll-a.fr/intangibles/international_accounting.htm

⁴³⁰ Supra Ghafaele [115] pp521-530

IP from an accounting perspective leads to problems in its reporting, which may result in the vulnerability of firms which base most of their performance on IP.⁴³¹

They found a significant difference in the approach to lending to SMEs and start-ups compared with larger corporates that have strong trading history.⁴³² Figure 22 below shows the difference in the reported value of an internally generated patent as compared to an acquired (purchased) patent.

Figure 22 Internally generated GB patent 123456 vs Acquired GB Patent 123456

GB Patent 123456	GB Patent 123456
Internally generated by Company X	Acquired by Company Y from Company X for £100,000 on 6 September 2013
Inventor: Steve Jones	Inventor: Steve Jones
Claims: A, B & C	Claims: A, B & C
Granted 5 September 2013	Granted 5 September 2013
Development costs £25,000	Purchase price £100,000
Patent value for financial reporting: £25,000	Patent value for financial reporting: £100,000

Patent GB123456 that is internally developed is the same as Patent 123456 that is acquired the next day. It is the exact same patent legally and technically. The inventor is the same. The patent claims that create the legal monopoly are the same. The duration of the patent is the same. The quality of the patent is the same. Yet for accounting purposes, Patent 123456 is inconsistently valued. This is a simplistic illustration but it does show how this approach is irrational from both a legal and a technical point of view. There needs to be a way that the patent value for Company X is closer to the figure recorded for Company Y for the system to be fair to patent developers and patent acquirers.

⁴³¹ Supra *IP Value* [20] p6

⁴³² Ibid p6

As early as 1999, it has been argued that there should be no difference between the requirements for: (a) intangible assets that are acquired externally; and (b) internally generated assets, whether they arise from development activities or other types of activities.⁴³³ For patent-backed lending purposes, there are two main areas of inconsistency between the accounting for acquired versus internally generated patents. These are initial recognition at cost, and measuring fair value. Leo argues as follows:

It may be strictly correct to state that acquired and internally generated intangibles are both treated the same in that both are being recognised at cost. However, even though the assets are in substance the same, initial recognition at fair value is allowed for acquired intangibles but not for internally generated intangibles. Acquirers are being given an advantage not available to those who generate their assets internally.⁴³⁴

IAS 38 recommends showing IC in the notes to the balance sheet. However, such notes are very brief and are only designed to clarify and explain specific individual line items in the financial statements and would not normally be comprehensive (see section 6.X for an illustration). While IAS has a high standing globally through policies designed to foster long-term agreement between domestic standards (as in the UK and other countries with well-developed accounting professions) and international standards, the flip side is that IAS 38 is now well-entrenched internationally. IAS 38, as it currently stands, continues to reinforce a lack of consistency between internally generated and purchased intangible assets as it appears to give precedence to historical cost. Further, it restricts the development of useful and relevant information for lenders. Despite its shortcomings, this is the price of

⁴³³ Leo, K. 'Intangible assets: Seeking consistency' (November 1999) *Australian CPA* p31

⁴³⁴ *Supra* Leo [432]

harmonising accounting standards.⁴³⁵ Consequently, stakeholders involved in patent-backed security transactions are likely to be in the progressive/reformist camp. This group holds the view that useful and relevant information is more important than information which is high in the traditional value of objectivity and reliability, but low in terms of relevance and usefulness. Can this problem be overcome? Higson argues that the difference between “progressives” and “traditionals” are the outcome of a lack of a clear basis within the conceptual accounting framework about what the financial statements are intended to achieve. If different groups are trying to achieve different things through the same medium, then conflict will be inevitable.⁴³⁶ The *Banking and IP?* Report largely adheres to the “traditionals” view. The authors state, “...this report does not advocate changes to... accounting standards. The steps required to unlock the business value of IP are pragmatic measures that build on principles and practices which exist today.”⁴³⁷ The authors accept the *status quo*, they did not consider recommending amendments to IAS 38 by way of introducing alternative (subject and qualitative) valuation methodologies to measure patent value. Nor does the 2014 *IP Valuation Report* directly consider the accounting standards or advocate any changes to them.

In June 2001, the US FASB unanimously approved *Statement 141 Business Combinations* and *Statement 142 Goodwill and Other Intangible Assets* which provides that every entity doing business in the US must determine the “fair market value” of their intangibles, rather than rely on “historic” values.⁴³⁸ This important accounting policy development requires US companies to adopt a more rigorous and controlled method for

⁴³⁵ Mathews, M. R. and Higson, A.W. ‘Potentially dysfunctional impacts of harmonising accounting standards: the case of intangible assets’ (2000) Massey University

⁴³⁶ Higson, A.W., *Corporate Communication: An Alternative Basis for the Construction of a Conceptual Framework Incorporating Financial Reporting*: Discussion Paper Series 192. Massey University: Department of Accountancy and Business Law.

⁴³⁷ *Supra Banking on IP?* [118] p16

⁴³⁸ See <http://www.fasb.org/summary/stsum142.shtml>

tracking and valuing IP assets leading to increased corporate reporting of IP asset⁴³⁹ is a potential solution for the UK and to be discussed further in Chapter 5.

From a legal perspective, company law goes a long way in prescribing the form and content of the accounting statements that companies must publish. UK financial statements are required to comply with ss 393-397 and 495 CA 2006. The ability to depart from accounting standards (whether domestic or international) is only available in cases where the result would be so misleading as to conflict with the objective of the relevant financial statements. In section 4.3.6 we critically examine the requirement under s 393(1) CA 2006 that a company's financial statements must provide a "true and fair" view. The requirement for accounts to show a "true and fair" view tends to override any other requirements.⁴⁴⁰ We then attempt to answer the question whether the traditional accounting treatment of intangible patent assets (which includes IAS 38) meets this overarching legal requirement.

4.3.6 How UK and international accounting standard setters intersect with UK company law requirements

In the UK Parts 15 and 16 of the CA 2006 drive the legal requirements for corporate accounts, financial reporting and the audit. As always, human actors have roles to play. It is of the highest importance to focus on the professional group that shapes the new company law. Who is the "standard setter" who is the *de facto* "company lawmaker"? In Germany, accountants have the upper hand through the "German International Accounting Standards Committee" (under § 342 of the German Commercial Code) which rules out the recognition of intangibles unless acquired.⁴⁴¹ In the US, we have seen that the Federal Accounting Standards Committee is the accounting standard setter. Powerful national groups such as

⁴³⁹ Neuhausen, B., Schlank, R. and Pippin, R. *Accounting for Business Combinations, Goodwill, and Other Intangible Assets* (2007) CCH Incorporated, p246

⁴⁴⁰ *Supra* Atrill [409] p127

⁴⁴¹ German Commercial Code as translated by A.F. Schuster, Barrister of the Inner Temple

these have much control over the rise and fall of accounting concepts and they participate heavily in the ongoing debate on the IAS. The Australian government's initiative to carry out further research on this intangible assets issue was not accepted by other members of the IFRS, primarily because certain associations were concerned with tax implications for its members associated with addressing this inconsistency.⁴⁴² The global process of accounting standard setting and the UK standard setting process are intertwined. Nonetheless, the political struggle towards further recognition of intangible IP through accounting continues to evolve and is gaining momentum.

4.3.6.1 Assisting patent owners – a legal basis for departing from IAS 38?

There are ways to assist patent owners who need to apply IAS 38. One answer lies in solving the traditional accounting objective / quantitative “measurement” problem to overcome the obstacle created by the lack of an active patent market. A regulated market for patents would provide the information input necessary to meet the traditional (objective and quantitative) valuation methodology so that patent assets could be traded and then recognised under IAS 38. A patent market may come into existence in the future, and the EU is involved in developing an initiative to set up such a market,⁴⁴³ however it is unlikely to assist innovating SMEs. As with regulated stock markets, only a small percentage of companies achieve a listing. This approach involves playing the accountants at their own game on their home field. Alternatively, one could establish legal authority to depart from IAS 38 altogether in order to reconfirm that the overarching legal policy with respect to financial statements is the substance of the information they contain, rather than the form.

⁴⁴² ‘Considering the effects of accounting standards: An Australian Response to the European Financial Reporting Advisory Group’ (2012) *Institute of Public Accountants*, pp15-16

⁴⁴³ *Creating a financial market for IPR Final report for EU Tender No3/PP/ENT/CIP/10/A/N02S003*, 5 December 2011. In the conclusions of its meeting on 4 February 2011, the European Council invited the Commission to explore the options for setting up an IPR valorisation instrument at the European level, in particular to ease SME access to the knowledge market and to report back to the Council by the end of 2011.

As far as this author can see, no banking or lending association, nor any Law Society, corporate law association or patent attorney association is actively involved in the debate on IAS 38 and the accounting treatment of intangibles. Accountants continue to control the redirection and growth of the financial recognition of patent assets in the corporate and financial world. Patents as financial assets “are” what accountants preparing the financial statements by following accounting standards tell us they “are.” If patent assets are not reflected in the balance sheet and are fully expensed as they are undertaken, both the earning and book value of a company’s equity will be understated by the accounting model. Thus, lenders will be provided with biased (conservative) estimates of the firm’s patent values and of its capability for the creation of future wealth as a result of those patents. Accordingly, a key aim of this thesis is to inform the lawyers, patent attorneys and lenders as to the critical issues that arise directly as a result of IAS 38. These stakeholders need to more fully appreciate why IAS 38 is generally unhelpful in representing internally generated patent assets in UK company accounts, which results in them often being under-valued leading to unfair or inaccurate credit risk evaluations. This causes the even more significant problem of limiting the growth of the domestic economy through lack of support of innovating firms which are in a worse position than NPEs that purchase patents. Given the outcome, the importance of asking the following legal question should not be underestimated.

4.3.7 Do financial statements prepared according to IAS 38 provide a “true and fair view” as required by s 393(1) CA 2006?

A company’s annual return includes its financial statements which are publicly available documents. If those financial statements provide the public with biased (conservative) estimates of the firm’s value (equity) and its capability to create wealth in the future (current

earnings), this implies that current accounting statements fail to provide an unbiased (true and fair) view of the company's financial position. This is an important corporate governance issue because it is the board of directors that has primary responsibility for the corporation's external financial reporting functions. Section 393 CA 2006 states that the directors must not approve the accounts unless they are satisfied that they give a "true and fair" view of the assets, liabilities, financial position and profit or loss of the company.⁴⁴⁴ Section 393 CA 2006 provides:

- (1) The directors of a company must not approve accounts for the purposes of this Chapter unless they are satisfied that they give a true and fair view of the assets, liabilities, financial position and profit or loss:-
 - (a) in the case of the company's individual account, of the company;
 - (b) in the case of the company's group accounts, of the undertakings included in the consolidation as a whole, so far as concerns members of the company.
- (2) The auditor of a company in carrying out his functions under this Act in relation to the company's annual account must have regard to the directors' duty under section (1).

Section 495(3) CA 2006 sets out the obligation of the auditors to prepare a report and clearly state whether, in the auditor's opinion, the annual accounts:

- (a) Give a true and fair view:-

⁴⁴⁴ The term *true and fair* was first used in the UK, where it originates, in legislation of 1948. However, prior legislation had used similar phrases. Companies legislation dated 1844 required UK companies to *present a full and fair balance sheet*, though the meaning of this phrase was never defined. A company was required to keep *full and true accounts*. By 1900 the auditor was required to state whether the balance sheet was *properly drawn up so as to exhibit a true and correct view*. This phrase was retained until 1948.

- (i) in the case of an individual balance sheet, of the state of affairs of the company as at the end of the financial year,
 - (ii) in the case of an individual profit and loss account, of the profit and loss of the company for the financial year,
 - (iii) in the case of group accounts, of the state of affairs as at the end of the financial year and of the profit or loss for the financial year of the undertakings included in the consolidation as a whole, so far as concerns members of the company
- (b) have been properly prepared in accordance with the relevant financial reporting framework; and
- (c) have been prepared in accordance with the requirements of this Act (and, where applicable, Article 4 of the IAS Regulation).

As the requirement to prepare accounts which show a “true and fair” view is a legal one, what is true is a question of fact and what is fair is a question of law for the Courts to determine. The “true and fair” concept has been part of English company law for decades and is central to accounting and auditing practice despite this no statutory definition of the phrase exists in the CA 2006 or in other UK legislation. Nor is the expression, “true and fair view”, defined in the accounting literature. However, the phrase has been the subject of FRC research and case law which will be discussed.

The practical effect of s 393 is that all UK company directors have a duty to ensure that the financial statements are free from material misstatements and faithfully represent the financial performance and position of the company. In larger companies, the Managing Director and the Chief Financial Officer are crucial participants and boards usually have a high degree of reliance on these officers to ensure the integrity and supply of accounting

information. These corporate officers oversee the internal accounting systems but they are dependent on accountants and auditors for the actual supply of the information. In the UK, auditors must also consider and expressly state in their audit report whether or not company directors have fulfilled their responsibility for the preparation of “true and fair” financial statements when providing an audit opinion and expressly state in this in their audit report.

Qualified UK accountants and auditors are members of accounting bodies which adopt codes of professional conduct and standards of ethical and technical conduct and competence. Accounting associations typically require their members to adhere to the accounting standards set by the IAS and the IFRS. This means that to avoid professional negligence, accountants must conform with IAS 38. Conversely, if they apply IAS 38 in carrying out their accounting duties, they will not be negligent even if the financial statements do not provide a “true and fair” view of the patent assets.

In terms of corporate governance and company law, the supply of accounting information forms a crucial link in enabling the providers of finance to monitor directors. Imperfections in the financial reporting process will cause imperfections in the effectiveness of corporate governance. The company law disclosure requirements have largely evolved to protect shareholders and creditors. The long-held public policy motive is that increased transparency will prevent fraud largely due to over-valuing corporate assets. Chapter 2 of Part 10 the CA 2006 sets out directors’ duties in ss. 171-177 with the aim of amending and codifying the common law to bring it into line with the expectations of the modern business world. They also attempt to set out in whose interest a company should be run. Broadly speaking, the common law duties of directors were designed to prevent directors from being negligent and to make sure that they put the company’s interests ahead of their own interests. The codified statutory duties have the same objectives. Section 172 includes the duty to promote the success of the company. It states that:

- (1) A director of a company must act in the way he considers, in good faith would be most likely to promote the success of the company for the benefit of the members of the who, and in doing so have regard (amongst other matters) to:-
- (a) the likely consequences of any decision in the long term;
 - (b) the interests of the company's employees;
 - (c) the need to foster the company's business relationships with suppliers, customers and others;
 - (d) the impact of the company's operations on the community and the environment;
 - (e) the desirability of the company maintaining a reputation for high standards of business conduct; and
 - (f) the need to act fairly as between members of the company.

This section codifies the common law and is intended to promote the concept of “enlightened shareholder value” (ESV). The Rt Hon Margaret Hodge MP, Secretary of State for Trade and Industry, as she then was, made it clear in her Ministerial Statement on the reforms to directors’ duties introduced by the CA 2006 that:

There are two ways of looking at the statutory statement of directors’ duties: on the one hand it simply codifies the existing common law obligations of company directors, on the other – especially in section 172: the duty to act in the interests of the company – it marks a radical departure in articulating the connection between what is good for a company and what is good for society at large.⁴⁴⁵

⁴⁴⁵ Supra McLaughlin [277] p320

She was referring to the introduction into company law of the ESV concept whereby companies should pursue shareholder wealth in the long term, ensuring sustainable growth and profits based on a wider range of stakeholder interests. According to McLaughlin,⁴⁴⁶ although the articulation of the connection between what is good for a company and what is good for society at large may be a radical step, ESV is not. She holds that it preserves the central role of the interests of shareholders in the structure of corporate governance. As directors are fiduciaries⁴⁴⁷ they are expected to act in good faith to promote the success of the company.

This challenging new duty has given company directors the most cause for concern because it has no obvious precursor, although it has clear links to the duty to act bona fide in the best interests of the company, which was the predominant and core fiduciary duty.⁴⁴⁸ At this stage, the nature and extent of the duty is difficult to interpret as it not closely aligned to any previous duty when compared with other duties in Chapter 2 of Part 10 of the Act, parts of this paper, while informed by existing case law and academic opinion, involve some speculation.⁴⁴⁹

However, turning to the list of matters to which the directors must have regard in promoting the success of the company, the most relevant provisions are: s 172(1)(a) the likely consequences of any decision in the long term; and (b) the interests of the company's employees. Directors need to ensure that the company is appropriately financed to carry out its operations. If a core activity of the company's operations involves internally generating

⁴⁴⁶ Ibid

⁴⁴⁷ A fiduciary is a person who holds a legal or ethical relationship of trust between himself or herself and one or more other parties (person or group of persons). Typically, a fiduciary prudently takes care of money for another person. A director is in a fiduciary relationship with shareholders who have invested funds in the company.

⁴⁴⁸ Keay, A. 'The Duty to Promote the Success of the Company: Is it Fit for Purpose?'

<http://www.law.leeds.ac.uk/assets/files/research/events/directors-duties/keay-the-duty-to-promote-the-success.pdf>, pp3-4. This implies that to be successful, directors must manage risk. Directors are accountable for how they conduct the affairs of the company. The overarching concept of good faith includes not simply the duty of care and loyalty, in the narrow sense, but promoting the welfare of the company must guide the fiduciary (director).

⁴⁴⁹ Ibid, p4

patents, then a central matter for the directors should be to endeavour to ensure their value is reflected in a true and fair way in the company's accounts to facilitate access to finance needed for commercialization, generating a profit for shareholders. Inadequate finance will have a detrimental effect both on the long-term success of the company, profits and the job security of its employees (if any). The list of matters to which the directors must have regard, as set out in s172 (1), is not exhaustive.

Consider this: what if the problem is that internally generated patents have been undervalued and as a result a company's potential to succeed is hindered by an inability to finance its activities? Have the directors fulfilled their duty to the company? Have the directors acted in a way they consider in good faith would be most likely to promote the success of the company for the benefit of the members? For the director of a micro company with no other assets save a single internally generated patent, coupled with a duty to promote the success of the company, the question of the accounting treatment required by IAS 38 should play on his or her mind, especially in terms of accountability to shareholders and had employees. What if the directors of a company that internally generates patent assets, in carrying out their duty under s172, genuinely believed that the company was being disadvantaged by adhering to IAS 38? In other words, that applying IAS 38 mandated accounting treatment to their patent assets does not result in a "true and fair" view? What if they refused to sign off the accounts under s393 because they are unconvinced that the accounts give a true and fair view of the company's intangible assets? The answer requires a critical analysis as to whether there is a viable legal argument for directors of innovating SMEs to depart from IAS 38 and adopt a different accounting treatment for their internally generated patent assets (e.g. GSK's Internal Rate of Return is discussed in Chapter 6). This leads to an evaluation of the legal research undertaken in connection with judicial consideration of the concept of "true and fair" financial statements.

Prima facie the word “true” in this context is taken to mean that the financial statements are factually correct and have been prepared according to applicable reporting frameworks such as the IFRS and do not contain any material misstatements that may mislead users. “Fair” value is primarily a legal concept and is intended to estimate a fair or reasonable or equitable (to use legal terminology) amount. It is not necessarily intended to reflect a likely cost, market or income approach to valuation. The essence of fair value, from a legal point of view, lies in the desire to be equitable to all parties. Fair valuation in respect of a patent is the amount that will fairly compensate an owner who is deprived of the economic enjoyment of the patent where there is neither a willing buyer nor a willing seller. However in 2012, the UK’s Financial Reporting Council (FRC) published its policy stance and clarification of the phrase “true and fair” view.

4.3.8 FRC research as to the meaning of “True and Fair View”

On its website the FRC announced that the most authoritative statement as to the meaning of “true and fair” have been legal opinions written by Lord Hoffmann and Dame Mary Arden in 1983 and 1984 and also by Dame Mary Arden in 1993 (‘the Opinions’). Since then significant changes in accounting standards and company law have taken place leading some to query whether the views expressed in those Opinions still apply. The FRC commissioned a further legal opinion from Martin Moore (QC) to ascertain whether the approach to “true and fair” taken in the Opinions needed revision. The FRC reported:

In his Opinion, Mr Moore has endorsed the analysis in the Opinions of Lord Hoffmann and Dame Mary Arden and confirmed the centrality of the true and fair requirement to the preparation of financial statements in the UK, whether

they are prepared in accordance with international or UK accounting standards.

Directors must consider whether, taken in the round, the financial statements that they approve are appropriate. Similarly, auditors are required to exercise professional judgment before expressing an audit opinion. As a result, the Opinion confirms that IT WILL NOT BE SUFFICIENT FOR EITHER DIRECTORS OR AUDITORS TO REACH SUCH CONCLUSIONS SOLELY BECAUSE THE FINANCIAL STATEMENTS WERE PREPARED IN ACCORDANCE WITH APPLICABLE ACCOUNTING STANDARDS [emphasis added].

The FRC believes that this Opinion is an important confirmation of a key contributor to the integrity of financial reporting in the UK.⁴⁵⁰

The relevance of the “true and fair” concept has been squarely confirmed by the FRC in its short 6 page report, *True and Fair* published in July 2011.⁴⁵¹ Further, according to FRC Press Notice 338 the Accounting Standards Board and Auditing Practices Boards reaffirmed the importance of the “true and fair” view in both UK GAAP and IRFS. The first page of *True and Fair* states:

In this note we discuss the continuing primacy of the true and fair requirement and its relevance to preparers, those charged with governance and auditors.

⁴⁵⁰ The FRC at <http://www.frc.org.uk/Our-Work/Codes-Standards/Accounting-and-Reporting-Policy/True-and-Fair.aspx>

⁴⁵¹ See <http://www.frc.org.uk/FRC-Documents/FRC/Paper-True-and-Fair.aspx>

Preparation of accounts

In his Opinion Martin Moore notes, in relation to the gradual shift over time to more detailed accounting standards, that “It does not follow ... that the preparation of financial statements can now be reduced to a mechanistic process of following the relevant standards without the application of objective professional judgement applied to ensure that those statements give a true and fair view, or achieve a fair presentation.”

This professional judgement is all important.

The same page specifically mentions that this applies to “making judgements about valuation, aimed at giving a true and fair view” as well as “standing back at the end of the accounts process and making sure the accounts overall do give a true and fair view”.

The FRC then issues the following cautionary statement about “true and fair” and accounting standards, warning that a departure from the standards should only be taken in extremely rare circumstances:

True and fair is not something that is merely a separate add-on to accounting standards. Rather the whole essence of standards is to provide for recognition, measurement, presentation and disclosure for specific aspects of financial reporting in a way that reflects economic reality and hence that provides a true and fair view. Accounting standards are arrived at after extensive consultation and after full due process. As a result, in the vast majority of cases compliance with accounting standards will result in a true and fair view, and disagreement with a particular standard does not, on its own, provide grounds for departing from it. Indeed under UK GAAP almost all true and fair overrides in the past were of law rather than of a standard.

Where the accounting standards clearly address an issue, but the answer does not seem to accord with “common sense” in a particular case, the solution is normally proper disclosure.

However in those “extremely rare” circumstances where directors and auditors do not believe that following a particular accounting policy will give a true and fair view they are legally required to adopt a more appropriate policy, even if this requires a departure from the standard. As IAS 1 states, an entity cannot rectify inappropriate accounting policies by disclosure. These circumstances are more likely to arise where the precise circumstances are not covered by a relevant standard.

Where a company departs from a standard in order to give a true and fair view and a proper explanation is given of the reason for the departure and its effects, the Financial Reporting Review Panel will be reluctant to substitute its own judgement for that of the company’s board unless it is not satisfied that the board has acted reasonably. There are a number of examples where the override has been used under IFRS, both inside and outside the UK.⁴⁵²

The six-page *True and Fair* Report relates to general principles and does not discuss any particular accounting standards nor does it mention intangibles assets or internally generated patent assets. Nor does Moore (QC)’s opinion⁴⁵³ from which the report is derived. At the conclusion of the Report, the following advice is made to preparers, directors and auditors to ensure that accounts in the UK continue to provide high quality information:

⁴⁵² *True and Fair*, FRC, July 2011, p3

⁴⁵³ Moore QC, M. Opinion entitled, *The True and Fair Requirement Revisited* for the FRC

- Always to stand back and ensure that the accounts as a whole do give a true and fair view;
- Be prepared, albeit in extremely rare circumstances, to consider using the true and fair override; and
- Ensure that the consideration they give to these matters is evident in their deliberations and documentation.⁴⁵⁴

In this legal analysis, the author submits the existence of internally generated patents assets is not an “extremely rare occurrence”, it is commonplace. Second, IAS 38 clearly addresses the accounting treatment of intangible assets, but in the author’s opinion the outcome of the application of IAS 38 (for the reasons detailed earlier in this chapter) does not seem to accord with “common sense”. In such a case, according to the FRC, the solution is proper disclosure. This implies additional narrative disclosure. Companies that internally generate patents could voluntarily prepare the new ICS advocated by a significant proportion of the accounting profession, and which is already mandated in Denmark. Alternatively, another form of corporate narrative report could be used to supplement the company’s traditional financial statements. The ICS format will be discussed in Chapter 5.

However, in his Opinion to the FRC Moore (QC) clearly sets out that the “true and fair” requirement is an over-arching concept, and is not the same as compliance with accounting standards. Thus, even where a company complies with an accounting standard, if the accounts fail to provide a “true and fair” view, then they are inadequate. Is this a question for the accountants or for the courts? Moore (QC) states that the scope for arguing that non-compliant financial statements nevertheless give a “true and fair” view, or a fair presentation, is very limited (paras 38-40). In determining whether a company’s accounts show a “true

⁴⁵⁴ <https://www.frc.org.uk/FRC-Documents/FRC/Paper-True-and-Fair.aspx> at p4

and fair” view, the Courts will rely heavily on the ordinary practices of professional accountants (para 8(c)). At this point, it would appear that the accountants are in the drivers’ seat on IAS 38. According to Moore (QC):

8.(C) ...That is because those practices reflect the accumulation of experience and good professional practice and mould the expectations of users of accounts as to the sufficiency and utility of the information in terms of quantity and quality.⁴⁵⁵

And further:-

(D) Compliance with generally accepted accounting principles as set out in relevant statements of standard accounting practice will be prima facie evidence of satisfaction of the true and fair standard and vice versa.

(E) The application of the concept involves judgment on questions of degree. Reasonable business men and accountants may differ over the degree of accuracy or comprehensiveness, there may be differences over the method used to adopt a true and fair view and there may be more than one view of a financial position, any of which could be described as true and fair.

However, an important argument in favour of companies that internally generate patents, is what Moore (QC) goes on to say:

(F) The concept is dynamic, evolving and subject to continuous rebirth. Accordingly, the detailed provisions of the Schedules to the Companies Act may have to yield to the overriding requirement to produce accounts which give a true and fair view.

⁴⁵⁵ Supra Moore [452] p38

There is little case law specifically on the question of whether accounts show a “true and fair” view and none that addresses the issues of inconsistent treatment of internally generated patent assets versus acquired patent assets (of which the author is aware).⁴⁵⁶ Over a decade ago, in 2000, the Basel Committee on Banking Supervision concluded that in the absence of active markets it would be difficult to obtain or calculate a reliable fair value for certain non-marketable financial instruments held at cost. The Committee concluded that “it did not believe the time was right to proscribe full fair value accounting . . . for all financial assets and liabilities”.⁴⁵⁷ However, in the author’s opinion the time is now right. A test case would be welcome given the increasing interest and support from within the accounting community and others that IAS 38 should be amended to include and deal with qualitative information about intangibles. This would require the input of the legal profession and patent attorneys who possess the relevant legal and technical knowledge. The Courts could evaluate the primacy of the overarching concept of financial statements providing true and fair information, rather than the current position – financial statements providing objective but inconsistent and incomplete information regarding intangible patent assets.

The IASB Framework for the Preparation and Presentation of Financial Statements (the “Framework”) sets out the concepts on which accounting practice is founded. It is similar in scope to the Statement of Principles of Financial Reporting made by the ASB in 1999. This Statement is explicit in reference to the “true and fair” requirement and provides:

⁴⁵⁶ See the House of Lords in *HMRC v William Grant & Sons Distillers Limited* [2007] UKHL 15, a revenue case in which considered whether a profit or loss has been calculated in accordance with “the correct principles of commercial accountancy” being used when preparing accounts that show a true and fair view; *Balloon Promotions Limited v Wilson (Inspector of Taxes)* 3 March 2006 SPC00524; *Odeon Associated Theatres v Jones (Inspector of Taxes)* [1971] 1 WLR 442; *Gallagher v Jones (Inspector of Taxes)* [1994] Ch 107.

⁴⁵⁷ Basel Committee on Banking Supervision (2000). Report to G7 Finance Ministers and Central Bank Governors on International Accounting Standards.

12. It is inherent in the nature of the true and fair concept that financial statements will not give a true and fair view unless the information they contain is sufficient in quantity and quality to satisfy the reasonable expectations of the readers to whom they are addressed. Such expectations change over time and the Board seeks, through its accounting standards and other authoritative pronouncements, both to respond to those expectations and to influence them. The Statement of principles may therefore be expected to contribute to the development of the concept.

13. The Statement of Principle does not, however, define the meaning of true and fair – it is detailed legal requirements, accounting standards and, in their absence, other evidence of generally accepted accounting practice itself, that normally determine the content of financial statements. Nevertheless, as the Statement is a set of high level accounting principles designed to help in setting standards, it has the true and fair view concept at its foundation. Its insistence on relevant and reliability as prime indicators of the quality of financial information is just one example of this.

As we know, the new UK GAAP which adopts IAS 38 will determine the method of recognising intangibles and measuring them for the financial reporting elements of the company's annual return commencing after 1 January 2015, resulting in the "mechanical application" of IAS to intangibles.

4.4 Conclusion

The time is ripe for a test case to obtain a judicial opinion focusing squarely on whether the application of IAS 38 provides a “true and fair” view of a company’s internally generated intangibles. IAS 1 permits departure from IFRS if a particular IFRS (e.g. IAS 38) would be so misleading that it would conflict with the objective of the financial statements set out in the Framework. IAS 1 was adopted by EC 1725/2003 and thus the ability to depart from an IFRS is incorporated by reference.⁴⁵⁸ A UK court may have regard to accounting standards such as IAS 38, but is not legally bound by them in whether a company’s financial statements give a “true and fair” view. The Court may take into account other evidence and expert evidence presented by accountants, lawyers, patent attorneys and lenders in arriving at their decision. Is there a special case to be made for a new bespoke financial standard for patents assets or intangibles generally, especially with respect to innovating SMEs?

In reply, accounting experts will likely argue that IAS 38 remains appropriate because in in their opinion there is no way to reliably measure the probability that the expected future economic benefits attributable to the asset will flow to the entity using accepted accounting methodology. Further, they will point out that tangible assets and intangible assets should be treated the same. However, lawyers know that fair is not always equal and what is equal is not always fair. It can be fair to treat situations (or for our purpose, asset classes) differently, yet equitably. By way of analogy, imagine a teacher puts a chocolate bar on the top of a tall bookshelf and asks the tallest and the shortest students in the class to try to get it. That would be equal but unfair. If the shorter student got a boost up, that would be unequal, but fair.

If, hypothetically, the courts were to decide that the application of IAS 38 did not provide a “true and fair” view of the company’s financial position and accordingly, permitted a

⁴⁵⁸ Supra Moore [452] p38

departure from IAS 38 in the treatment of internally generated intangibles (patent assets) what are the alternatives? How should the strict criteria set out in IAS 38 be relaxed? What new conceptual framework should the International Accounting bodies adopt? The answers to these questions are important, but beyond the scope of this thesis.

Earlier in section 4.3.7 above, we noted that if the outcome of applying IAS 38 to patent assets did not accord with “common sense” then in such a case (according to the FRC) the proper solution is additional corporate and financial disclosure. In Chapter 6 we investigate the viability of additional voluntary corporate reporting of patent assets using the new Strategic Report (which replaced the Business Review in October 2013) of a company’s annual return or alternatively, using the emerging ICS format.

5 The need for increased voluntary corporate patent asset disclosure by SMEs

The more visible it [IP] becomes in public accounts, the easier its value becomes to realise. This will lead to greater opportunities for lenders – and higher risks of inaction.

Martin Brassell and Kelvin King
Banking on IP? (2013)⁴⁵⁹

Introduction

In Chapter 4 we confirmed that current UK corporate reporting and disclosure laws, which hinge on IAS 38 in respect of intangible assets, arguably do not go far enough to give a “true and fair” view with respect to the internally generated patent assets on an innovating SMEs balance sheet. Therefore, given the accounting methods currently used and likely to remain in place in the foreseeable future, enhanced voluntary disclosure of patent information and the business strategy to generate future value from the patents is recommended as a means to supplement and complement the traditional financial statements. Shareholders and other outsiders, including lenders, need accurate, relevant and timely information to enable them to assess whether the company directors, who have the legal responsibility for managing the patent assets, are ensuring a reasonable return on those assets; and secondly, to control directors acting in their own self-interest as opposed to acting in the interests of the company.⁴⁶⁰ Lenders are key users of financial statements and it is vitally important to facilitate a positive yet prudent credit decisions being made. Bhattacharya, formerly Professor of Finance at the Indian Institute of Management, confirms that in relation to credit appraisal:

⁴⁵⁹ Supra *Banking on IP?* [18] p15

⁴⁶⁰ *York Building Co v MacKenzie* (1795) 3 Pat 378 which held that, “He that is entrusted with the interest of others cannot be allowed to make the business an object of interest to himself; because from the frailty of nature, one who has the power will be too readily seized with the inclination to use the opportunity for serving his own interest at the expense of those for whom he is entrusted.

Additional information may be relevant to users in understanding the financial position and liquidity of an enterprise. Disclosure of this information, together with a commentary by the management is encouraged.⁴⁶¹

This chapter aims to contribute to a better understanding how UK innovating SMEs could approach patent information and strategy reporting. In section 5.1 lenders' experience regarding the lack of useful IP asset information available to them is highlighted. Section 5.2 examines the UK and European law on the level of corporate reporting required by SMEs to answer the questions, "Do corporate disclosure laws reach far enough to include intangible assets in the context of accounting methods currently used?"⁴⁶² and "What legal responsibility do company directors have for managing and ensuring a proper return on patent and other IP assets?" As long as there is no place for patents, IP and other intangibles on balance sheets, corporate law needs to ensure that such increasingly valuable assets, for which directors are responsible, are not ignored nor hidden from shareholders and the public. If traditional accounting for IP is an ineffectual gatekeeper of the status quo because accounting statements cannot adequately document how patents and IP relate to business performance, then the law must step up and confront this challenge of communicating this crucial information. Next, a comparative functional analysis of narrative corporate IP asset disclosure in Canada, the US, Denmark and Germany is carried out, describing the conceptual frameworks and evaluating relevant principles. Section 5.3 considers the benefits of enhanced patent information disclosure for innovating SME, despite the increased

⁴⁶¹ Supra Bhattacharya [408] p464

⁴⁶² 'The Perfect Storm: Corporate Disclosure, Shareholders, and the Importance of Intellectual Property' at www.ipprospective.com

regulatory burden and costs involved. Section 5.4 analyses the format for making patent information disclosure. In section 5.5 we study the mandatory corporate reporting of intellectual capital (IC) and intangibles regime in Denmark and the US followed by the voluntary ICS reporting regime in Germany in section 5.6.

5.1 Accessing borrowers' patent information: the lender's experience

Credit appraisal involves evaluating a variety of information sources in order to arrive at a decision to lend. This includes Companies House records, credit history, automated tools and scoring systems. Richard Holden, Head of Manufacturing at Lloyds Banking Group, states that the current position within the SME debt finance market is that:

At present, these seldom if ever include intangibles or IP; they don't get offered or asked for – they are just not on the agenda. As a result, it is unlikely in most cases, that the credit decision process considers IP to any degree. Paying much attention to IP at the moment would be a big leap in any event, but at least when it comes to understanding a company's overall position, it may provide comfort between doing something or not. It doesn't necessarily follow even at that point that lending will increased or be directly assigned to IP, but it might make the difference between lending and not lending.⁴⁶³

There is a material disconnect between the entirety of the company's intangibles and the legal requirements of corporate reporting. Improving the quality of IP information available to lenders would probably involve a non-standard form or process with bespoke documentation, at least initially. This would have a cost attached to it which the bank would

⁴⁶³ *Supra Banking on IP?* [118] p61

pass on in some way, unless standardised approaches were available.⁴⁶⁴ It is essential to make patent information as easy as possible for lenders to understand so that the “invisible” patent value can be “seen” to inform lending decisions. The purpose of corporate narrative reports, to supplement and complement the financial statements, would assist in this regard.

5.2 Corporate reporting under the CA 2006

Since 1844 when the registration and incorporation of companies first took place, public disclosure has been an important aspect of company law. The debate on how intangibles should be accounted for and reported in the financial statements has been present in the literature for over a century.⁴⁶⁵ Today, private micro and SME companies, as well as the majority of non-listed UK companies, operate under a set annual financial disclosure requirement which may be accessed by the public. Section 854 CA 2006 requires every company to submit an annual return to Companies House. The annual return sets out basic information about the company on a particular date (its return date) every year. Such periodic annual reporting rarely takes the long-term nature of patents into account. Companies must develop a method of reporting on their intangible patent assets that is reflective of the value they provide to the business in the medium to long-term given that the sustainability of the organisation and the long-term view is now enshrined in the CA 2006 via the ESV concept and reform of the directors’ duties under s172 includes the duty to promote the success of the company. Patents, as corporate assets, have the potential to contribute to a company’s profitability, long-term growth over the potential monopoly period, and ultimate success. Arguably, patents are an easier form of intangible to report on for two reasons: they require registration; and, as there is a cost involved, company directors will be aware of their existence. This level of awareness may even be higher when compared with other forms of

⁴⁶⁴ Supra *Banking on IP?* [18] p62

⁴⁶⁵ Cañibano, L et al ‘The Value Relevance and Managerial Implications of Intangibles: A literature review’ (1998) OECD, Directorate for Science, Technology and Industry, p19

intangibles such as knowhow, confidential information and copyright, all of which are unregistered rights and thus incur no registration fees that must be accounted for.

Every company is required to keep accounting records which must show with reasonable accuracy the financial position of the company at any particular moment in time.⁴⁶⁶ A company's annual accounts consist of a balance sheet, a profit and loss account, the Directors Report⁴⁶⁷ and, if the company is not exempt from audit, the Auditors' Report.⁴⁶⁸ Currently, companies which are classified as small⁴⁶⁹ are permitted to submit abbreviated accounts to the Registrar of Companies, although full accounts will still have to be delivered to shareholders. This means that SMEs can submit shorter accounts to Companies House created from the statutory accounts - therefore even less information about the company will be publicly available.⁴⁷⁰ The Financial Reports Standard for Smaller Entities (effective 1 January 2015) provides detailed guidance to the legal requirements.⁴⁷¹ As discussed in Chapter 4, the directors must not approve the accounts unless they are satisfied that they give a "true and fair" view of the assets, liabilities, financial position and profit or loss of the company: s393 CA 2006. Under the legal requirements, companies that classify as small can choose not to submit a Directors' Report with their accounts. At the expense of transparency, small companies can lawfully reduce the regulatory corporate reporting burden disclosing less in their financial statements and choosing not to submit a Directors' Report.

⁴⁶⁶ Section 386 CA 2006. Failure to keep accounting records may be punished by a fine and/or 2 years' in jail: s389 CA 2006.

⁴⁶⁷ Section 415 CA 2006

⁴⁶⁸ SMEs are typically exempt from the need to have their accounts formally audited.

⁴⁶⁹ Section 382 CA 2006 defines a company as 'small' if it meets two out of the following three requirements: (i) the company's annual turnover is £5.6 million or less; (ii) the total assets of the company are £2.8m or less; (iii) the company has 50 or fewer employees.

⁴⁷⁰ Accounts and Tax Returns for Smaller Companies at <https://www.gov.uk/prepare-file-annual-accounts-for-limited-company/prepare-annual-accounts>. Further, the new Small Business, Enterprise and Entities Act 2015 will amend annual return and filing requirements when it comes into force in 2016. Section 92 of the Act replaces Part 24 of the CA 2006 to remove the requirement to file an annual return. Instead, all companies will be subject to a new requirement to deliver to Companies House a confirmation statement stating that the company has delivered all the information it was required to provide in the period to which the confirmation statement relates (*new section 853A(1), CA 2006*). This will result in even less disclosure by SMEs.

⁴⁷¹ (July 2013) FRC at [https://www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/FRSSE-\(effective-January-2015\).aspx](https://www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/FRSSE-(effective-January-2015).aspx)

5.2.1 The Directors' Report and the former Business Review

In January 2006 the UK government introduced the “Business Review”⁴⁷² in the Directors' Report based on best practice and not on mandatory OFR Reporting Standard (RS1)⁴⁷³ to inform shareholders.⁴⁷⁴ The Business Review was aimed at presenting a fair review of the company's business and a description of the principal risks and uncertainties it faces, among other items.

If the company's shares are publicly listed on a stock exchange within the European Union or on the New York Stock Exchange or the American Nasdaq Stock Market, public disclosure under the *Financial Services and Markets Act 2000* (FSMA)⁴⁷⁵ requires the Business Review to report on additional matters including the main trends and factors likely to affect the future development, performance and position of the company's business. Thus if patent rights are likely to have an impact on the business, relevant information concerning those rights must be disclosed. The FSMA also requires half-yearly financial reports as well as interim management statements.⁴⁷⁶ For example, in a life science or technology company the value of a patent portfolio is likely to be central to appraising the value of the company. Obvious examples of key patent-related risks that must be disclosed are: (1) material litigation involving the patent portfolio; or (2) a revocation proceeding concerning a patent that is central to business operations. Another less obvious risk that should be disclosed is the expiry of a patent right owned by the company. Such disclosures are legally required if they have a potential financial impact and would assist the public to evaluate the future development, performance and position of the publicly listed company's business.

⁴⁷²Section 417 CA 2006

⁴⁷³ Yeoh, P. 'Narrative reporting: the UK experience' (2010) *International Journal of Law and Management* Vol. 52, No.3, p211

⁴⁷⁴ Section 172 CA 2006

⁴⁷⁵ Via the Disclosure and Transparency Rules promulgated by FSA pursuant to the FSMA 2000.

⁴⁷⁶ DTR Rule 4.

5.2.2 UK company law reform – the “Strategic Report”

The reform of narrative reporting (i.e. the information that was formerly required in the business review) was one aspect of a wider reform agenda⁴⁷⁷ aimed at modernising company law by making corporate reporting “simpler, clearer and more focused”⁴⁷⁸ and to “improve corporate accountability and transparency”.⁴⁷⁹ In October 2012, a revised structure for narrative reporting in the form of the CA 2006 (Strategic Report and Directors’ Report) Regulations 2013 (the “SR Regulations”) was enacted. The regulations introduced a “Strategic Report” that applies to all companies and since October 2013 has replaced the previous Business Review described above pursuant to new ss 414A-D CA 2006. The requirements for the Strategic Report are similar to the Business Review (except for quoted companies which have to include qualitative information to provide an understanding of the development, performance and position in relation to their business model and strategy, gender diversity, human rights and greenhouse emissions). The reforms demonstrate the importance of narrative disclosures on diverse subject matter that the government believes is in the public interest (for companies not classed as “small”). The Strategic Report enables a company to tell its story, starting with the strategy, business model and the principle risks and challenges the company has faced.⁴⁸⁰ Reporting on IC, intangibles or IP is not specifically mandated. This format could provide an opportunity for innovating SMEs to voluntarily express their patent strategy and business model. These reforms suggest that voluntary disclosure of patent information and strategy would be viewed positively as a powerful means for an innovating SME to communicate to its stakeholders.

⁴⁷⁷ ‘Encouraging Employers to Use Human Capital Reporting: A Literature Review of Implementation Options, Briefing Paper’ (February 2013), p8

⁴⁷⁸ Ibid p17

⁴⁷⁹ ‘The Coalition: our programme for government’ (May 2010). However, the Small Business, Enterprise and Employment Act 2015 aims to simplify small company’s statutory filing requirements even further by replacing annual returns with a requirement to ‘check, notify changes if necessary and confirm’ the statutory information at least once in a 12 month period, however this has yet to be implemented.

⁴⁸⁰ ‘Better and Simpler Company Reporting’ (12 June 2013)

5.2.3 European corporate reporting reform

In April 2013 the EC published a draft directive to require large and listed companies to include additional disclosures of non-financial information in their annual reports. The directive will not become law until 2016 or even later, but has the potential to increase reporting of non-financial information, such as patent information.⁴⁸¹ This EU-wide reform highlights the growing importance of disclosure of non-financial information which will benefit patent owning entities.

With respect to SMEs, the European Parliament has adopted Directive 78/660/EEC on the annual accounts of certain types of companies as regards micro-entities that consolidates EU accounting requirements into one directive, in particular relaxing the accounting rules for smaller companies.⁴⁸² The Directive took effect in 2013 and Member States, including the UK, will have two years to implement the Directive which updates the EU's accounting framework, and in particular, for our purposes:

- permits micro-entities to prepare a very simple balance sheet and profit and loss account with virtually no notes (Directive 2012/6). Micro entities are companies with less than 10 employees, a turnover of €700,000 and/or a balance sheet total of not more than €350.000;⁴⁸³
- reduces the information to be provided by small companies in the notes to the accounts; and
- removes the EU requirement for small companies to be audited (though Member States can take a more proportionate approach).

⁴⁸¹ 'New UK Annual Report and Requirements to disclosure human rights, diversity and greenhouse gas emissions' (20 June 2013)

⁴⁸² Directive 2012/6/EU of the European Parliament and of the Council of 14 March 2012 amending Council Directive 78/660/EEC on the annual accounts of certain types of companies as regards micro-entities, (2012) Official Journal of the EU pL81/3

⁴⁸³ Ibid

The recitals to the Directive expressly state the following:

(10) The aim of this Directive is to enable Member States to create a simple financial reporting environment for micro-entities. The use of fair values can result in the need for detailed disclosures to explain the basis on which the fair value of certain items has been determined. Given that the micro-entity regime provides for very limited disclosure by way of notes on the accounts, the users of the accounts of micro-entities would not know whether the amounts presented in the balance sheet and the profit and loss account incorporate fair values. Accordingly, to provide certainty for such users in this regard, Member States should not permit or require micro-entities using any of the exemptions available to them under this Directive to use the fair valuation basis in drawing up their accounts. Micro-entities that wish or need to use fair value will still be able to do so by using other regimes under this Directive where a Member State permits or requires such use.⁴⁸⁴

This development echoes the current regulations and legislation applicable to small UK companies which have significantly reduced legal corporate reporting requirements. As such, it is uncommon for innovating SMEs in the UK and EU to report on patent information at all, not even in notes to the accounts.

5.2.4 The Directors' Report

The law deems the directors' duty to prepare the Directors' Report so important that the failure to do so is a criminal offence.⁴⁸⁵ Corporate disclosure is a tool used to drive behaviours by company directors that are considered desirable. The board of directors, or

⁴⁸⁴ Supra [481]

⁴⁸⁵ Sections 232-235 CA 2006

individual directors, needs to make sure that the corporate management of the company's patent portfolio complies with CA 2006. Directors cannot ignore their duty to oversee these activities, even if the balance sheet obscures patent assets and other intangibles. Thus narrative reporting (e.g in the Strategic Report) complements account reporting, setting out the directors' view of the future prospects and risks they must minimise. While the "business judgment rule"⁴⁸⁶ is a relevant consideration, such business judgment must result from the directors being properly informed. As long as they do this they will not become liable merely because a decision turns out to have been a bad one. However, this section needs to be read in conjunction with s.174 CA 2006 which imposes a duty to exercise reasonable care, skill and diligence.⁴⁸⁷ The paramount consideration is that the board ensures that it is appropriately informed and this requires it to be provided with accurate, relevant and timely information.⁴⁸⁸ In relation to the company's patents, appropriate information should be disclosed in the Directors' Report and Strategic Review as legally required. Shareholders are in a vulnerable position and justifiably vest confidence, good faith, reliance, and trust in the directors whose aid, advice or protection is sought to safeguard their investment.⁴⁸⁹ As we saw in Chapter 4 earlier, each individual director on the Board owes statutory duties to the company and must act in good faith to oversee the company's assets, including any patent portfolio.⁴⁹⁰ These provisions guide directors' management activities and determines

⁴⁸⁶ The courts are reluctant to second-guess business decisions as they are not business people and hold that business decisions are best left to the board of directors. As Lord Eldon stated in *Carlen v Drury* (1812) 1 Ves & B 149, 'The Court is not to be required on every occasion to take the management of every playhouse and brewhouse in the Kingdom.'

⁴⁸⁷ Keay, A. and Kosmin, L. *Directors' Duties* (2014) Second edition. Bristol: Jordan Publishing

⁴⁸⁸ Marenberg, B. 'What Corporate Directors Need to Know About Intellectual Property' (9 March 2010) *Life Science Leader Magazine*

⁴⁸⁹ *Hospital Products Ltd v US Surgical Corporation* (1984) 156 CLR 41, 68.

⁴⁹⁰ Sections 170 (1) and 172 CA 2006. The directors do not owe duties to individual shareholders or to other stakeholders in the company: *Percival v Wright* [1902] 2 Ch 421

whether they have acted properly.⁴⁹¹ The ESV concept (discussed in section 4.3.7) requires directors to be more inclusive in their decision-making, taking into account the relationships which the company has with stakeholders, such as financiers and lenders, in seeking to benefit the shareholders.⁴⁹² The independent auditors of the company have a duty to ensure that the narrative presented in the Directors' Report aligns with the financial accounts. Next, we consider why voluntarily reporting on patent information would be a positive step for innovating SMEs, even though they are not legally obliged to do so.

5.3 The benefits of increased disclosure of patent information

Voluntary corporate disclosure by innovating SMEs is recommended to rectify the invisibility of intangible assets on a company's balance sheet and to overcome the deficiencies that result from applying IAS 38 to internally generated patent assets.

In 2002 a Canadian study analysed the content of the annual reports of 10,000 Canadian companies searching for a list of IC-related terms and reported that only a very small number of IC disclosures actually took place.⁴⁹³ As a common law country, the Canadian corporate reporting regime is generally similar to that required in the UK. In both Canada and the UK, the legal corporate reporting requirements drive the level of information that is available to the public (including lenders). Little information related to patents or other IC is publicly available via corporate reporting in either jurisdiction in the SME field.

In relation to debt finance, there is also evidence that increased disclosure is positively correlated with lower effective interest costs.⁴⁹⁴ Companies with additional informative disclosure policies have more accurate earnings forecasts, reduced estimated risks and

⁴⁹¹ Keay A. and Kosmin, L. *Directors' Duties* (2014) 2nd ed. Bristol: Jordan Publishing. Directors' duties may not be limited, waived or contracted out of, but companies may buy insurance to cover directors for costs in the event of breach.

⁴⁹² Supra McLaughlin [277] p320

⁴⁹³ Bontis, N. (2003) pp9-20

⁴⁹⁴ Lang, M. and Lundholm, R. 'Corporate Disclosure Policy and Analyst Behaviour' (October 1996) *The Accounting Review* Vol. 71, No.4, 467-492

reduced information asymmetry. The reduced risk that results from the greater disclosure of information leads to lower borrowing costs. Equally, lower borrowing costs provide organisations with an incentive to disclose greater amounts of information.⁴⁹⁵ This outcome is directly relevant to patent-backed finance. In truth, lenders can never know precisely how much value will be realised at a future point in time for any given asset, however they need to develop the skills to become better at predicting the future value of a borrower's patents. Certainly, there is a cost involved in compiling the patent information. However, once the required patent information and reporting format is standardised, the cost of collecting and reporting is likely to be outweighed by the increased access to debt finance.

Annual reports are a key communication tool to legitimise corporate activity.⁴⁹⁶ Accuracy is positively associated with market value (because it reduces uncertainty) and improved forecasts of future value.⁴⁹⁷ Borrower-provided disclosure via the legally mandated company annual return (which must be signed off by the directors as giving a “true and fair view”) is information that is already required by the lender at no cost to it. Lenders would incur costs if they had to actively acquire the information independently from other sources. Such due diligence costs will be passed on to the borrower in any event by way of arrangement fees, disbursement and/or the interest rate applied to the loan. Voluntary disclosure would also help directors document how they have carried out their duty to promote the success of the company, a legal requirement for which there is minimal guidance from the case law. The ICS, an alternative corporate disclosure format, is discussed below.

⁴⁹⁵ Ibid

⁴⁹⁶ Guthrie, J. and Petty, R. ‘Intellectual Capital Literature Review: Measurement, Reporting and Management’ (2000) Vol. 1, Issue: 2, 155-176 *Journal of Intellectual Capital*, p155

⁴⁹⁷ Ibid

5.4 The Intellectual Capital Statement (ICS)

The philosophy underpinning IC asset reporting is that while accountants report numbers in the common language of monetary value, there is no logical reason why decision-makers, directors or other stakeholders such as lenders should restrict themselves to such an information set. A modern format for the increased disclosure of intangible assets (including patents) originated in the 1990s led by a handful of Scandinavian companies including Skandia, Carl-Bro and Celemi. Sveiby argued that these companies sharply illustrate the differences in managerial attitude between the industrial and post-industrial ages with respect to corporate reporting.⁴⁹⁸ The ICS has now existed for over two decades, led by Denmark and an analysis of the literature is set out below.

5.4.1 The literature relating to the ICS

Professor Leif Edvinsson,⁴⁹⁹ regarded a pioneering contributor to the theory of IC, instigated the creation of the world's first public corporate IC Annual Report in 1994. In March 1997, he and co-author Michael S. Malone published *Intellectual Capital: Realizing your Company's True Value by Finding Its Hidden Brainpower*.⁵⁰⁰ This work defined the meaning of IC, how it is classified and how it could be measured. In Chapter 3 they offer guidance on how to build an IC report. Edvinsson subsequently published other monographs including *Accounting for Minds* (1997)⁵⁰¹; *Intellectual Capital: Navigating in the New Business Landscape* (1998)⁵⁰²; and *Corporate Longitude: Discover Your True Position in the Knowledge Economy* (2002) and several academic articles, the most relevant of which is,

⁴⁹⁸ Sveiby K.E. *The New Organisational Wealth - Managing and measuring Knowledge-Based Assets*. (1997) Berrett-Koehler, San Francisco

⁴⁹⁹ Edvinsson received an MBA from the University of California, Berkeley, USA, and the qualification of 'civilekonom' from Lund University, Sweden. He is the author of numerous articles on IC. In January 1998, Edvinsson received the prestigious Brain Trust "Brain of the Year" award, UK. He is the world's first Professor (adjunct) of IC at Lund University.

⁵⁰⁰ Supra Edvinsson [492]

⁵⁰¹ Supra Edvinsson [492]

⁵⁰² Roos, J. et al *Intellectual Capital: Navigating in the New Business Landscape* (1998) Macmillan Business

‘Developing a model for managing intellectual capital’(1996) with co-author Patrick Sullican.⁵⁰³ Edvinsson was the first director of IC at Skandia, a Swedish financial services company and is a Professor (adjunct) of IC at Lund University, Sweden. The aim of his work is to integrate the role of knowledge and intangible assets into accounting procedures and financial practices. His research began with the following question:

Read a useful prospectus lately? How about an informative annual report?

How come few of these traditional reports offer a clue about which emerging young company is about to take over the world, about which established blue-chip company is about to fall into a competitive black hole?

And even when these reports do manage to capture a glimmer of reality, how come those clues lie between the lines of the accompanying, barely legible text⁵⁰⁴ and not in bold type in the balance sheet? ...The answer to that is in the traditional model of “accounting,” which so beautifully described the operations of companies for half a millennium, is now failing to keep up with the revolution taking place in business.⁵⁰⁵

Edvinsson concluded that, “It has become obvious that the real value of companies cannot be determined only by traditional accounting measures.”⁵⁰⁶ Gary Hamel, Professor at the London School of Business, argues further that “an asset is really only a perception of an opportunity about which a majority of people have agreed”.⁵⁰⁷ Keith Bradley of the Open Business School (UK) asked, “Do we have the tools to manage these hidden assets? The simple answer is “no, we don’t”⁵⁰⁸ The ICS provides a methodology for enhancing

⁵⁰³ Edvinsson, L. (2002); *European Management Journal* (1996) Vol.14, pp356-364

⁵⁰⁴ Edvinsson is referring to the footnotes to the accounts.

⁵⁰⁵ Supra Edvinsson [492] p1

⁵⁰⁶ Ibid, p3

⁵⁰⁷ Ibid, p4 as a result of Edvinsson interviewing Hamel in July 1996.

⁵⁰⁸ Bradley, K. (1996) p6

corporate disclosure of intangibles, supplementing the information available in the traditional financial accounts.

Other important works on the subject of IC reporting include Annie Brooking's *Intellectual Capital: Core Asset for the Third Millennium Enterprise* (1996)⁵⁰⁹ and *Value-Driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value* (2000) by Patrick H. Sullivan⁵¹⁰ which further the discourse on the subject.

In 2001, the first IC World Congress took place at McMaster University, Canada. Since then Austria⁵¹¹ and Denmark have introduced regulatory reporting of IC. The Danish *Financial Statements Act (DFSA)*⁵¹² requires reporting on IC resources and environmental aspects in the management report if it is material to providing a true and fair view of the company's financial position.⁵¹³ In particular, the DFSA 2001 states in Chapter 11, s 99(2) that the management's review "shall describe the enterprise's knowledge and know-how resources if they are of special importance to the its future performance". Other countries, including Germany, Norway, Hong Kong, Japan⁵¹⁴ and Australia⁵¹⁵ also have voluntary reporting guidelines.

In 2007, the Research Committee of the Institute of Chartered Accountants of Scotland commissioned a 134-page rigorously refereed report, *Intellectual Capital Reporting: Lessons from Hong Kong and Australia* which confirmed the limitations of traditional accounting and examined IC reporting in various nations.⁵¹⁶ The study investigated the voluntary IC disclosure of Australian and Hong Kong companies observing:

⁵⁰⁹ Brooking, A. (1996)

⁵¹⁰ Sullivan, P. (2000)

⁵¹¹ See *The Austria University Act 2002*

⁵¹² Danish Act on Commercial Enterprises' Presentation of financial Statements, etc. Danish Act no 448 of 7 June 2001. See <http://csrgov.dk/legislation>

⁵¹³ DFSA Chapter 3, s11(1)

⁵¹⁴ See 'Japanese Guidelines for Disclosure of Intellectual Assets Based Management' No English reference

⁵¹⁵ Johanson, U. et al (2006) pp474-491

⁵¹⁶ Guthrie, J, Petty, R and Ricceri, F. *IC Reporting: Lessons from Hong Kong and Australia* (2007) pp29, 46.

The fact that traditional financial practice does not include non-financial performance adversely impacts knowledge-based organisations. Those that are looking to raise capital in the debt and/or equity markets are particularly affected.⁵¹⁷

The research, although it did not address patent assets specifically, concluded that IC is expressed in narrative rather than numerical terms; the current IC policy vacuum results in a lack of standardisation of corporate reporting and there is a need for a level of international standardisation; the level of IC disclosure is relatively low and linked to company size; and finally, the voluntary reporting of IC information indicate that the data has a value.⁵¹⁸

Accordingly, it is confirmed that there is a need to report IC information, and for our purposes, for innovating SMEs to voluntarily report on their patent assets. In the next section, the mandatory enhanced corporate disclosure regime adopted by Denmark in 2000 is examined. This regime requires Danish companies to increase the level of corporate reporting of all company assets, both tangible and intangible.

5.5 International policy initiatives regarding mandatory IC reporting

5.5.1 Denmark

Denmark is a key system of interest given its mandatory narrative IC reporting regime which has led to the use of the ICS becoming accepted practice. It is also noteworthy that there is a strong voluntary component in the reporting procedure and culture.⁵¹⁹ According to the Danish Ministry of Science, Technology and Innovation (DMSTI), “an IC statement is an integrated part of company knowledge management”.⁵²⁰ Constructing an ICS is based on 4 types of knowledge resources (as commonly applied in the IC field): employees, customers,

⁵¹⁷ Ibid, Executive Summary p v

⁵¹⁸ Supra Guthrie [508] pp i and ii.

⁵¹⁹ *Encouraging Employers to use Human Capital Reporting* (2013) p21

⁵²⁰ *A Guideline for Intellectual Capital Statements* (2000) p7

processes and technologies. These are evidenced by a statement representing the organisation's knowledge management work through a:

- (1) knowledge narrative;
- (2) set of managerial challenges;
- (3) number of initiatives; and
- (4) relevant indicators.⁵²¹

In 2000, the DMSTI published the first ICS guidelines in the world, based on the experience of 17 companies who participated in a Danish Agency for Trade and Industry ICS Project. This ICS project laid the foundation for the Danish ICS guidelines.⁵²² The guidelines demonstrate that the corporate reporting approach is built on the same principles as financial statements which ask questions relating to the same issues. The difference lies in how the questions are asked and that the answers are provided in narrative form, rather than numerical form. Figure 23 below presents a comparison of the questions that underpin financial statement and ICS questions.

Figure 23 Comparing financial statements and IC statements

Financial Statement	Intellectual Capital Statement
What are the organisation's assets and liabilities?	How is the organisation's knowledge resource comprised?
What has the organisation invested?	What has the organisation done to strengthen its knowledge resource?
What is the organisation's return on investment?	What are the effects of the organisation's knowledge work?

Source: Danish Ministry of Science, Technology and Innovation (2003a)

⁵²¹ Ibid

⁵²² *Analysing Intellectual Capital Statements (2003a)*

The ICS is not a balance sheet in the classical financial sense. It gives a detailed account of a firm's IC (which may include patents and patent applications) and balances this with achieving targets. The DMSTI report (2003) gives guidance on how to prepare ICSs.⁵²³ However, this guidance is limited for the purpose of this thesis as it does not give specific information on how to disclose patent information and strategy.

A study published in the *British Accounting Review* in 2008 found no evidence of use of the ICS in the UK, in the form of a separate statement produced by a company that focuses exclusively on the reporting of aspects of their IC, management and resources.⁵²⁴

Another study found that while no UK publicly listed company in its sample had published a stand-alone ICS, 10.6% of the annual report was devoted to disclosing IP information.⁵²⁵

Nevertheless, the adoption of ICS format is potentially one way to assist innovating SMEs to overcome the distortion of the IAS38-related financial calculations concerning the fiscal value of their patent portfolios, improving the quality of non-financial patent information available to external stakeholders. However, producing an ICS is likely to be an expensive exercise for the innovating SME. Further, dedicated patent information disclosure guidance is needed as the evidence shows that UK companies generally have very little experience with this category of IC subject matter.

5.5.2 The US experience: corporate reporting and IP

The US approach to corporate reporting for listed companies mirrors that of the UK and is of comparative system interest in connection with corporate reporting of IP and compliance costs. Increased corporate reporting of all company assets (tangible and

⁵²³ ICS– *The New Guideline* (2003b)

⁵²⁴ Striukova, L. et al 'Corporate Reporting of IC: Evidence from UK companies (2008) Vol. 40 pp297-313 *The British Accounting Review* at pp298-301

⁵²⁵ Ibid, pp308-309

intangible) is mandated by *Sarbanes Oxley Act 2002* (SOX 2002).⁵²⁶ The Act requires publicly listed companies (not SMEs) to increase their reporting on internal control structures and procedures for financial reporting.⁵²⁷ Title III comprises 8 sections that mandate senior executives take individual responsibility for the accuracy and completeness of corporate financial reports. SOX 2002 was enacted in reaction to a number of major corporate and accounting scandals in that country.⁵²⁸ Thus, US public companies (as with UK listed companies) have a legal obligation to effectively measure, closely monitor and disclose the relationship between the IP rights and their financial performance. They translate changes in the scope and strength of those rights into reportable indicators of financial performance.⁵²⁹ SOX 2002 and the US securities laws generally require that processes be in place to ensure that financial statements and reporting are reliable under GAAP standards. IP rights that have a material effect on financial performance must be disclosed, including off-balance sheet instruments.⁵³⁰ Essentially, greater emphasis on the accurate valuation of all assets, including IP assets is prescribed by the SOX 2002 even though, as in the UK CA 2006, there is no statutory language that refers specifically to IP. IP is also largely invisible or hidden, not only in the financial accounts but also more generally in corporate law. SOX 2002 requires documentation of the “fair value” and not the “value in use” of corporate assets. It adheres to the generally accepted definitions of intangibles.⁵³¹ Item 101(c)(1)(iv) of

⁵²⁶ (Pub. L. 107-204, Stat. 745 Pub. L. enacted July 30, 2002), also known as the "Public Company Accounting Reform and Investor Protection Act" (in the Senate) and "Corporate and Auditing Accountability and Responsibility Act" (in the House), is a US federal law that set new or enhanced standards for all US public boards, management and public accounting firms.

⁵²⁷ Sections 302 (Disclosure controls), 401 (off balance sheet items), 404(Assessment of Internal Control) SOX 2002

⁵²⁸ Enron and Worldcom. The bankruptcy of Enron highlighted how off balance instruments that were fraudulently used.

⁵²⁹ Manickavasagam, V. 'IPBest Practices in the Post Sarbanes-Oxley Act Era' (February 2011)

⁵³⁰ Kote, L. et al (2005); Report and Recommendations Pursuant to Section 401(c) SOX 2002. On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers (PDF)

⁵³¹ Gallagher & Cawsey Co. 'Wading Through the Intellectual Property Requirements of the Sarbanes-Oxley Act of 2002' (2005)

Regulation S-K clarifies that the Act requires a public company to disclose in its Annual Report:

...the importance to the industry segment of the company, and the duration and effect of all patents, trademarks, licenses, franchises and concessions held by the company to the extent the foregoing is “material.”

This US regulation expressly refers to disclosure of IP rights. In relation to patents, it is taken to mean that any material information regarding patents and the licensing of such patents is required to be disclosed in a publicly listed US company’s annual report. Commentators have pointed out that some of the important IP issues raised by this Item are not only what is “material”, but what is meant by the phrase “importance to the segment” of the company being reported on, and the “effect of” the IP?⁵³² Ultimately, disclosure of a patent asset is required if it assists the public (e.g. potential investors or lenders) in evaluating the company or has a potential financial impact. Company directors face a significant challenge in balancing the disclosure obligations against the fiduciary duty to preserve asset value, magnified when that asset value may be destroyed by premature disclosure or diminished by excessive disclosure. However, even where disclosure of a patent licence or other sensitive disclosure might otherwise be required, the SEC has a confidential treatment procedure which may be followed for certain information otherwise subject to disclosure.⁵³³ The author is unaware of a similar procedure under CA 2006. In the UK, s 414C(14) CA 2006 makes clear that the disclosure of information about impending developments or matters in the course of negotiation is not necessary if the disclosure would, in the opinion of

⁵³² Ibid, p7

⁵³³ The SEC has set forth substantive and procedural guidelines for Rule 24b-2 confidential treatment requests in the Division of Corporation Finance Staff Legal Bulletin No. 1 (with Addendum), “Confidential Treatment Requests” (February 28, 1997, addendum July 11, 2001)

the directors, be seriously prejudicial to the interests of the company. This is the case even if that information is considered material.

In the US, SOX 2002 has reaffirmed the need to meticulously value and monitor IP assets from a corporate disclosure compliance perspective. These requirements ensure that information about all IP is communicated and translated into financial reports. However, critics argue the onerous corporate reporting requirements have negatively impacted the system. A significant body of academic research exists regarding the costs and benefits of SOX 2002, which arrive at different conclusions.⁵³⁴ This is due in part to the difficulty of isolating the impact of SOX from other variables affecting the stock market and corporate earnings. It has been mooted that average cost for a publicly listed US company to comply with the SOX 2002 legal disclosure requirements is circa \$4m USD per annum.⁵³⁵ A Foley and Lardner Survey in 2007 analysed the change in the total costs of being a U.S. public company (e.g. external auditor fees, directors and officers insurance, board compensation, lost productivity, and legal costs). They found they were significantly affected by SOX 2002 legal requirements. Nearly 70% of survey respondents indicated public companies with revenues under \$USD 251 million should be exempt from SOX Section 404.⁵³⁶ While the rationale for the stricter level of corporate reporting for publicly listed companies is sound, the practical cost of doing is clearly very high. Nevertheless, as the Chief Executive Officer and the Chief Financial Officer are required to unequivocally take ownership for their financial statements under Section 302, SOX 2002 requirements have enhanced corporate

⁵³⁴ Shakespeare, C. 'SOX 2002 Five Years On: What Have We Learned?' (2008) *Journal of Business & Technology Law*: 333; 'Five years of Sarbanes-Oxley' (26 July 2007) *The Economist*

⁵³⁵ Halling, D. B. (2009) Mr Halling is a US patent attorney. His Chapter 6 discusses the effect of SOX on the US technology start up ecosystem.

⁵³⁶ 'Foley Study Reveals Continued High Cost of Being Public' (2 August 2007) www.foleyandlardner.com

transparency (based on the accuracy of analyst forecasts) significantly improving investor confidence and more accurate, reliable financial statements.⁵³⁷

5.5.3 Cost issues associated with corporate disclosure of patent information

Cost is the one important reason why, in the author's opinion, corporate narrative reporting on off balance sheet items such as patent assets should remain voluntary and not a formal legal requirement for UK innovating SMEs. Another important reason relates to directors' liability for misleading information, to be discussed further in Chapter 7.

In some cases the costs involved in formally disclosing patent assets will be warranted given the potential benefit that information will bring to assist to secure a line of credit. However, innovating SMEs who choose to voluntarily report to enhance the prospect of successful loan applications should have more guidance on how they should do so. A lender does not need to know the exact value of the patent rights. Rather, lenders simply need to know that the value of the patent rights is sufficient to cover monthly repayments and any unpaid amounts if the debtor defaults on the loan.⁵³⁸

We have seen that the corporate disclosure requirements for SMEs are minimal under the CA 2006 given availability of using the "abbreviated" reporting format (Chapter 4). The ICS is not a legal requirement under UK company law. Presently, only a few countries provide IC reporting guidelines. However the OECD, the EC and the World Bank are also supporters.⁵³⁹ Next we focus on voluntary IC reporting and Germany's ICS guidelines.

⁵³⁷ Arping, S. and Sautner, Z. 'Did SOX Section 404 Make Firms Less Opaque? Evidence from Cross-Listed Firms' (2012) *Contemporary Accounting Research*, 30, 2013, 1133-1165

⁵³⁸ Murphy et al *Patent Valuation Improving Decision Making through Analysis* (5 April 2012) Wiley

⁵³⁹ In 2002 the EC funded the MERITUM (1999-2003) project which led to the Guidelines for the Management and Reporting of Intangibles (2002) classifying IC into categories of human, structural and relational capital. The EC's RICARDIS (2006) project adopted the MERITUM (2002) classification of IC.

5.6 Voluntary ICS reporting in Germany

This section explores and compares the German ICS reporting system to identify the effectiveness, limitations and solutions as regards narrative corporate reporting of patent assets. A 51-page document entitled *Intellectual Capital Statement – Made in Germany Guideline 1.0 on the preparation of an ICS*, ('Guide') published in 2004 by the Federal Ministry Economics and Labour is evaluated.⁵⁴⁰ ICS reporting in Germany (known as *Wissensbilanz*) is voluntary and the *Guide* is highly relevant as it targets SMEs – indeed the opening paragraphs specifically comment on debt finance provided by banks, stating:

ICSs can be used for external communication in order for instance to acquire funding for future investments. Since classical balance sheets have to date only included past events and largely tangible assets such as real estate or technical plant, entrepreneurs, banks and other investors are in fact faced by a dilemma. The information which they need for an investment decision is not available, and purely tangible assets as reported in customary balance sheet accounts are not sufficiently authoritative in forecasting the potential earnings and innovation of an enterprise. For instance, the (subjective) opinion of financial analysts as to this criterion which is vital when it comes to buying shares or granting a loan and to the management of SMEs remains at present based solely on intuitive lobbying for their idea. The consequence is that either no loan is granted, or that the cost of funding it is (too) high. This problem is made worse by the new guidelines on granting loans contained in Basel II⁵⁴¹ which is to officially enter into force at the end of 2006. Previously, large groups and corporations were able to objectivise their credit worthiness and future ability via ratings. The ICS is an aid here to SMEs. It offers a structure for the presentation and evaluation of competences that

⁵⁴⁰ http://www.akwissensbilanz.org/Infoservice/Infomaterial/Leitfaden_english.pdf

⁵⁴¹ Basel II Guidelines were issued by the Basel Committee on Banking Supervision in 2004.

are critical to success and the innovative potential of the enterprise. The ICS portrays the intangible assets, and hence supplements the traditional balance sheet with the criteria missing today. If an enterprise is able to make its IC transparent on the financial market in such a form, it becomes easier to take up loans, and funding costs for innovative and risk-prone investments will be reduced. For instance, it will also become possible for SMEs to report their entire corporate value – including the intangible assets. At the same time, the ICS offers banks and investors a better basis for their decision-making on investments in these enterprises.⁵⁴²

This statement comprehensively acknowledges the reasons for the government's support of the use of ICS by SMEs, namely to: close the information gap; improve transparency; facilitate access to debt finance; and standardise the capture and processing of IC information. The *Guide* is the result of a project supported by the Federal Ministry of Economics and Labour whereby prototype ICSs were drafted by 14 representative SMEs. Encouragingly, all the SMEs involved unanimously agreed that drafting their ICS was beneficial. The German model builds on and further develops the Danish ICS method and the drafting mechanics are discussed below.

5.6.1 The German model for ICS drafting

The German ICS model begins with a corporate “Fitness Check” as set out in Figure 24 below. A company answers 11 questions in the left-hand column of the table with yes (1) or no (0). The ratio between the positive and negative answers shows the degree to which the requirements are met. The more questions that are answered positively, the easier it will be to draft the ICS. Conversely, if the majority of the answers are negative, this highlights the

⁵⁴² Supra [532] pp8-9

need to give particular attention to these areas when drafting the ICS. The 14 SMEs in the pilot study completed the Fitness Check.

Figure 24 The ICS Fitness Check

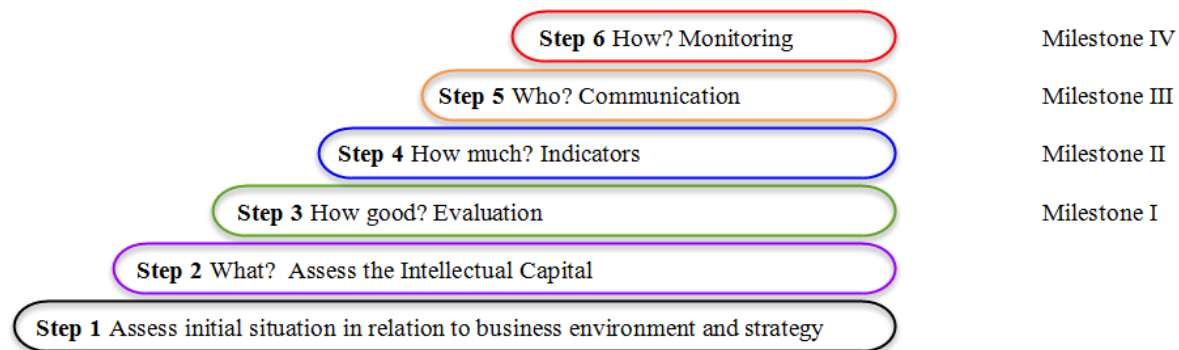
Fitness Check on preparation of an Intellectual Capital Statement		Yes/No	Comparative Value
Q1	Are many of your employees engaged in intellectually challenging tasks?		6 out of 14
Q2	Have we already dealt with controlling and management systems (such as quality management process optimisation, BSC, etc)?		10 out of 4
Q3	Does our management want and support intellectual capital statements?		12 out of 14
Q4	Is our organisation willing to devote time and resources to intellectual capital statements?		12 out of 14
Q5	Do the employees regard intellectual capital statements as an important project?		6 out of 14
Q6	Can we involve employees from various areas of our enterprise in intellectual capital statements?		13 out of 14
Q7	Are we willing to discuss our strengths and weaknesses openly and constructively?		12 out of 14
Q8	Is management open to proposals and change?		10 out of 14
Q9	Do we recognise “soft factors” as important success factors?		14 out of 14
Q10	Are future topics already touched upon and broadly discussed?		12 out of 14
Q11	Do we have a documented, communicated business strategy?		10 out of 14
RESULT			

Source: ICSs - Made In Germany Guide 1.0 p14

The *Guide* then sets out 6 steps for drafting an ICS with four milestones.⁵⁴³ This is simple, non-technical approach that would be straightforward for an SME to carry out, as summarised in Figure 25 below.

⁵⁴³ Supra [532] p16

Figure 25 **Six Steps to Drafting an Intellectual Capital Statement**



Source: Intellectual Capital Statements - Made In Germany Guide 1.0 p16.

Further detail of the type of information to be taken into account is determined by following the structure for drafting the ICS narrative, set out in Figure 26.

Figure 26 **Structure for the ICS Narrative**

1. Why do we need an ICS in our organisation?
2. Company description
3. Business success and challenges
4. Business and knowledge strategy
5. Our intellectual capital
6. Future perspectives and measures
7. Collection of indicators

Source: ICSs - Made In Germany Guide 1.0 p31

The *Guide* does not provide a sample report as completed by one of the SMEs in the pilot study which would have enhanced its usefulness. Nor does the *Guide* address IP or patents specifically or give any example of the narrative style of IP asset reporting which is a weakness. The *Guide* adopts a more general approach and this limits its utility from a patent-backed debt finance perspective. However, the author assumes that an innovating SME with a patent portfolio would address each of the seven items with a patent focus. Scott Bell, Head of UK Investment Banking at Deutsche Bank, gives an indication of the type of patent information that would be useful to a lender:

Without data about value and risk, including fundamentals such as ownership, strategy and information to support comparisons, it is hard to see how a functional and active market can be developed; and while data is not the only ingredient, the demand for data and analytics to facilitate a better understanding must be met and is an essential starting point.⁵⁴⁴

SME patent portfolio owners still need additional bespoke guidance, for disclosing IP and patent information in a standardised format or model that is better tailored to their needs.

5.7 Conclusion

In 2002 Edvinsson warned, “There have always been occasional and temporary gaps between market perception and accounting reality. But now that gap is turning into a chasm. And that suggests that we are not looking at aberration but a systemic flaw in the way we measure value.”⁵⁴⁵ This chapter illustrated the conceptual differences between accounting presentation and corporate disclosure law. It suggests that patent-backed lending decisions could be significantly improved by recognising that patents can be simultaneously quantified (using the market approach where historical transactions exist), quality assessed, compared and evaluated with additional disclosure of relevant, timely and accurate qualitative narrative information. In Chapter 6 we examine what patent information innovating SMEs should report and how to report it. Using a case study approach, the author examines disclosures made by global pharmaceutical company GlaxoSmithKline (UK) plc, an enterprise whose business model depends on its large and well-established patent portfolio.

⁵⁴⁴ ‘Patents reach trillion dollar tipping point’ (17 September 2014) AISTEMOS, London

⁵⁴⁵ Supra Edvinsson [492] p2

6 Disclosure of patent information in UK corporate narrative reporting

A true and fair view implies that all statutory and other information is not only available but is presented in a form in which it can be properly and readily appreciated.

Sir Russell Kettle (1887-1968)
Chartered Accountant and Author⁵⁴⁶

Introduction

In this chapter we address the question “How should innovating SMEs at the early stage of their business cycle voluntarily report their patent assets?” It is vital for them to provide a coherent shape for identifying, reporting and presenting the “patent asset value story” to potential lenders and other stakeholders interested in the future growth prospects of the firm. In other words, the “patent value story” will show “how the money is made” in a consistent, clear and uncluttered manner.⁵⁴⁷ In addition, the innovating SME should demonstrate the role the patent assets play within the business, whilst adopting a balanced perspective, with a view to increasing transparency and reducing asymmetric information regarding the financial accounting metric currently used to value its patent portfolio. One desired outcome is to enhance favourable lending decisions. The aim of this chapter is to consider the content and structure for voluntary disclosure of patent information. Currently, this could be voluntarily included as part of the Strategic Report (a form of corporate narrative reporting) contained in the firm’s annual report discussed in Chapter 5 for the reasons as outlined above and in Chapter 4.

In section 6.1 we introduce the views of the Financial Reporting Council (FRC) on the subject of IC reporting and the relevant literature.

⁵⁴⁶ Kettle, R. ‘Balance Sheets and Accounts under the Companies Act, 1948’ (1950) *Studies in Accounting* Sweet & Maxwell, p17

⁵⁴⁷ Cowley, A. and Swaffield, A. ‘The Strategic Report A practical guide to the new regulations’ (2014) Deloitte

Section 6.2 presents a case study that qualitatively analyses the specific narrative “patent disclosures” made in a publicly listed corporation’s annual report. The purpose of the case study is to critically examine one example of best practice when informing external stakeholders (such as lenders) as to the existence and strategies for generating value from the company’s key patent assets. GlaxoSmithKline plc (GSK) was selected because it is a global pharmaceutical firm headquartered in the UK and must fully comply with UK legal corporate disclosure requirements as set out in the CA 2006 and the UK Corporate Governance Code.⁵⁴⁸ Further, pharmaceutical firms rely heavily on patents to support their business model and to safeguard their market share through the product lifecycle⁵⁴⁹ and the sector makes the highest level of IP disclosure in listed companies.⁵⁵⁰ The narrative style and the level of patent disclosure adopted in GSK’s annual report is extensive and enables us to identify, critically analyse and hermeneutically interpret and evaluate a wide variety of key patent information indicators. Thus the GSK 2012 Annual Report provides a rich source of material. The aim of the case study analysis is to derive the basis of a guide for voluntary patent information disclosure using a much more streamlined format appropriate for innovating SMEs.

Section 6.3 discusses the recommendation made in the March 2014 the *Final Report from the Expert Group on IP Valuation*⁵⁵¹ that companies with IP assets should file a “management report” together with their annual report which gives external users detailed information about IP value. The Report concluded that such additional corporate disclosure

⁵⁴⁸ <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-September-2012.pdf>

⁵⁴⁹ Arundel, A. and Kabla, I. What percentage of innovations are patented? Empirical estimates for European firms’ (1998) *Research Policy* pp127-41

⁵⁵⁰ Supra Striukova [516] This study dealt mainly with voluntary disclosure and did not focus specifically IP disclosure, rather on IC disclosure. It confirms that FTSE 100 companies disclose more IC information than smaller companies. The pharmaceutical/biotech sector was found to make the highest IP disclosure. The highest frequency disclosures concerned IP (16%) especially in relation to patents over drugs as confirmed in interviews and work-related knowledge (14%).

⁵⁵¹ Supra *IP Valuation* [20] Chapter 4

would be a “useful vehicle to improve public available information on intangibles” and further that “introducing an additional reporting section for intangible assets and IP would increase the transparency of IP value within company accounts, providing important information to lenders, investors and stakeholders”. This recommendation directly supports the approach in this thesis, namely that innovative SMEs could disclose in a narrative form additional relevant information concerning the value of the patents to the firm’s bottom line and business strategy in order to enhance access to debt finance even though there is no legal requirement for them to do so. The relevant findings and recommendations of the *Banking on IP Report*⁵⁵² commissioned by the UKIPO are discussed. This material supplements the GSK case study with current thinking by EC and UK multidisciplinary subject matter experts in order to derive a basis on which to build a guide for UK innovating SME voluntary patent information and strategy disclosure. Finally, section 6.4 sets out the conclusions drawn from the case study and the relevant literature.

6.1 FRC guidance on the Strategic Report

In August 2013 the UK Parliament approved *The CA 2006 (Strategic Report and Directors’ Report) Regulations 2013*. The purpose of the strategic report is to inform shareholders and help them to assess how the directors have performed their duty to promote the success of the company.⁵⁵³ It is separate to the Directors’ Report and must be separately approved by the board of directors. The FRC is the UK’s independent regulator responsible for promoting confidence in corporate reporting and governance mandated by the CA 2006 to foster investment.⁵⁵⁴ It seeks to ensure that “Corporate reports contain information which is relevant, reliable, understandable and comparable, and are useful for decision-making,

⁵⁵² Supra *Banking on IP?* [18]

⁵⁵³ Section 414(C)1) CA 2006

⁵⁵⁴ <https://www.frc.org.uk/Our-Work/our-key-activities.aspx>

including stewardship decisions”.⁵⁵⁵ It encourages entities to prepare a high quality strategic report which provides a “holistic and meaningful picture of an entity’s business model, strategy, development, performance, position and future prospects”.⁵⁵⁶ According to the FRC:

In practice, an annual report comprises three distinct components – narrative reports; corporate governance statements; and financial statements. The information contained in these components has different objectives which should guide preparers to where disclosures could be located. The aim is to promote cohesiveness and enable related information to be linked together.⁵⁵⁷

And further,

The overriding objective of narrative [company] reporting is to provide information on an entity, insight into its main objectives and strategies, the principal risks it faces; and to complement, supplement and provide context for the related financial statements.⁵⁵⁸

This statement perfectly expresses why an innovating SME with little else than off-balance intangible patent assets needs to “supplement and provide context for the related financial statements” which do not identify or reflect their value via the submission of a Strategic Report. The Strategic Report should contain a fair and balanced review, consistent with the size and complexity of the business of:

⁵⁵⁵ ‘Rising to the Challenge: A Review of Narrative Reporting by UK listed companies’ (2009) p1. The FRC reviewed the annual reports of 50 UK listed companies focussing on content, communication and clutter.

⁵⁵⁶ Exposure Draft: Guidance on the Strategic Report (2013) at p7

⁵⁵⁷ Ibid p10

⁵⁵⁸ Supra FRC [545] p10

- (a) the development and performance of the company's business during the financial year;
- (b) the position of the company at the end of the year; and
- (c) a description of the principal risks and uncertainties facing the company.

Large companies must include financial and non-financial key performance indicators (KPIs) although medium-size companies are exempt from disclosing non-financial KPIs. Patent information is a non-financial KPI that innovating SMEs should consider voluntarily disclosing in their annual return. An annual report, tailored to meet an innovating SME's business objectives, should provide the information necessary for lenders to assess the SME's:

- (a) development, performance and position;
- (b) future prospects;
- (c) strategy for achieving its objectives;
- (d) business model; and
- (e) governance.⁵⁵⁹

As early as 2008, the FRC recommended that listed companies needed to improve the inclusion non-financial KPIs (such as IC/ IP) to explain how the key drivers of the business are monitored and that "quality supplemental information is never clutter".⁵⁶⁰ Crucially, the FRC expressly states that it welcomes "enhancement" to narrative reporting:

⁵⁵⁹ Supra FRC [545] p15 and s417 CA 2006

⁵⁶⁰ Supra FRC [545] p20

Preparing a good quality annual report that communicates effectively all the important information is a major intellectual and logistical challenge. Many companies continue to devote significant time and effort to improving their narrative reporting, but there are always opportunities for further enhancement as experience and best practice develop.⁵⁶¹

However, with respect to IC specifically the FRC has stated the following:

Off-balance sheet resources

Most companies discuss their employees; given this is now a requirement ‘to the extent necessary’ this is not surprising. However, only 36% go beyond this to discuss other intangible assets such as brands, **intellectual capital** and natural resources. The off-balance sheet assets are often some of the most important to a company’s future success; a comprehensive discussion of “performance and position” should include this aspect as well as the resources on the balance sheet.⁵⁶²

In other words, the FRC recommends that all company narrative reports contain more information and focus on the area of IC. IC, by definition, includes IP and thus, patent information. In terms of level of information, the FRC non-mandatory guidance is:

3.19 The Strategic report should be considered as the top layer of information shareholders. Some users may require a greater level of detail. In this case the strategic report can be used to signpost to other complementary information.

⁵⁶¹ Supra FRC [545] p3

⁵⁶² Section 417(4)(a)&(b) CA 2006

3.20 Signposting enables shareholders to “drill down” to detailed complementary information that is related to a matter addressed in a particular component but that is not necessary to effectively communicate the information that is required by law or regulation in respect of that component. This more detailed complementary information should be placed elsewhere in the annual report, or published separately.⁵⁶³

Information is material if its omission or misrepresentation could influence the economic decisions shareholders take on the basis of the annual report as a whole. Only information that is material in the context of the strategic report should be included within it.⁵⁶⁴ This will very much depend on the entity in question. Materiality is an entity-specific aspect of relevance based on the nature or magnitude (or both) of the actual or potential effect of the matter to which the information relates in the context of an entity’s annual report. It requires directors to apply judgement based on their assessment of the relative importance of the matter to the entity’s development, performance, position or future prospects.⁵⁶⁵ Finally, qualitative factors (such as patent information and strategy) may have a greater influence on the determination of materiality in the context of the strategic report than in respect of items in the financial statements. Both financial and non-financial information could be material.⁵⁶⁶

⁵⁶³ *Guidance on the Strategic Report* (June 2014) FRC, p12

⁵⁶⁴ *Ibid*, para5.1, p15

⁵⁶⁵ *Supra* [361], para5.3, p15

⁵⁶⁶ *Ibid*, para 5.4, p15. Although the CA 2006 does not use the term “material”, the concept is implied by many of its requirements.

6.1.1 Reducing uncertainty through voluntary patent asset corporate reporting

Almost two decades ago Ernst⁵⁶⁷ found that patent active firms with a narrow technological focus outperform other companies according to various profitability and productivity measurements. In later studies, he also found that 2-3 years after a firm files patent applications its sales increase, showing a causal relationship.⁵⁶⁸ Ramb and Reitzig concluded that European patent applications tend to have a stronger correlation with a firm's market value than its investment R&D as set out in their balance sheet.⁵⁶⁹ This study supports the need for enhanced patent information disclosure. In 2013, Dr Carl Frey of Oxford University says:

That patent information explains the market value of firm better than information being published in firms' annual financial statements is also evident from studies conducted by Hirschey and Richardson (2004) in relation to US firms, but it also found to be true for Japanese firms (Hirschey and Richardson, 2001) and as well as a German one (Trautwein 2007). Accordingly, it has been suggested that patents can be used to signal future economic benefits to capital markets (see for example, Blind et al, 2006) a view that has received empirical support.⁵⁷⁰

Dr Frey's research explores reducing patent and trade mark information asymmetry by enhanced corporate disclosure by listed companies concentrating on disclosure in capital markets as opposed to voluntary patent information disclosure by private SMEs. Dr Frey

⁵⁶⁷ Ernst, H. 'Patenting Strategies in the German Mechanical Engineering Industry and their Relationship to Company Performance' (1995) *Technovation*, Vol. 15 No.4, pp225-240

⁵⁶⁸ Ernst, H. 'Patent Information for Strategic Technology Management' (2003) *World Patent Information*, Vol. 25, Issue 3 pp233-242.

⁵⁶⁹ Ramb, F. and Reitzig 'A comparative analysis of the explanatory power of balance sheet and patent information for market values of German firms' (2004) Working paper, *Copenhagen Business School*

⁵⁷⁰ Frey, C.B. Intellectual Property Rights and the Financing of Technology Innovation (2013) *Edward Elgar Publishing Limited*, p19

concludes that reporting IP information assists companies to overcome stock market uncertainties due to asymmetric information, reducing the costs of capital. We can infer that an innovating SME seeking debt finance will have an interest in ensuring that its patent information is captured, presented and made available to lenders. The legally mandated UK annual corporate reporting requirements provide an opportunity to do this, however, patent information reporting is still at its infancy.⁵⁷¹ In the author's view capturing the "patent asset value" story at an early stage of the firm's business life-cycle will have the added benefit of ensuring that the firm systematically reports the progress and growth of its patent portfolio throughout the business lifecycle. This historical patent information will also eventually be highly useful (and much less costly to collate at a later date) if the firm decides to raise equity finance in the future. Therefore, in order to further develop patent information corporate reporting and further the research carried out above, the next section critically examines the patent information disclosures made by GSK in its 2012 Annual Report in order to demonstrate how best to inform stakeholders, such as lenders, as to the value of the patent as assets potentially available as security.

6.2 GSK case study

The patent-related information disclosed by the global pharmaceutical company GSK in its 2012 Annual Report⁵⁷² was selected as an example of "best practice" in respect of patent information disclosure. A case study methodology was chosen because the detailed examination of an individual substantial corporate disclosure should provide realistic insight into a coherent model for presenting a variety of patent information. It is an exploratory form

⁵⁷¹ Lev, B. *Intangibles Management, Measurement, and Reporting* (2001); Blair, M.M. and Wallman, S.M.H. *Unseen Wealth: Report of the Brookings Task force on Intangibles* (2001) Brookings Institution Press, Washington D.C.

⁵⁷²See GSK Annual Report 2012 at <http://www.gsk.com/media/279963/annual-report-2012.pdf>

of empirical inquiry which investigates a contemporary phenomenon within its real-life context.⁵⁷³ For our purposes, the case study is useful for demonstrating theoretical legal concepts in an applied setting and bridging the gap between black letter law and practice: descriptive (how) and explanatory (why). The GSK 2012 annual report was carefully combed for specific narrative patent information disclosures and the commentary weaves in a critical analysis as to the significance of the disclosures. A key assumption underlying the analysis is that the amount of space in the report devoted a subject indicates the relative importance of the subject matter from the perspective of those who have written it.⁵⁷⁴ Although GSK has more onerous narrative corporate reporting obligations as a quoted company than an SME, the aim is to critically analyse:

- the type of patent information GSK selected to disclose;
- how that information is drafted and presented;
- what type of information GSK has not disclosed; and
- whether the selection of patent information disclosure can be used as the foundation for a guide to voluntary patent information disclosure by SMEs (adopting a more streamlined format).

6.2.1 GSK corporate history

GSK plc was incorporated as an English public limited company on 6 December 1999, formed by a merger of two listed companies: Glaxo Wellcome plc and SmithKline Beecham plc. It is the parent company of the GSK group, a major global healthcare group involved in the creation, discovery, development, manufacture and marketing of pharmaceutical products and health-related consumer products. GSK's shares are listed on

⁵⁷³ Yin, R. K. *Case Study Research: Design and Methods* (1984) Sage Publications, Newbury Park, p23

⁵⁷⁴ *Supra* Striukova [516] p304

both the London and the New York Stock Exchanges.⁵⁷⁵ The company's commercial success depends on the creation of patent-protected innovative new medicines, vaccines and healthcare products. As we have seen, UK company law requires directors to prepare financial statements for each financial year and GSK's directors are required to prepare group financial statements in accordance with IFRS as adopted by the EU. In preparing the GSK financial group statements the directors have also elected to comply with IFRS, as issued by the IASB. GSK's directors are well aware of their legal obligations and the fact that the Annual Report will be heavily scrutinised by numerous experts, including accountants, lawyers and many others. They take great care in preparing it to ensure its accuracy before it is released. GSK make a substantial investment in their patent portfolio which is of critical importance to its shareholders. Therefore, as a listed company, information pertaining to the company's valuable patent portfolio is required by law to be disclosed in alignment with the UK Corporate Governance Code (September 2014).⁵⁷⁶ The patent information selected for disclosure and the way that GSK discloses it should therefore be of a high. All references to "patents" in GSK's annual report are highlighted in red.

⁵⁷⁵ GSK 2012 p251

⁵⁷⁶ Supra [547]

6.2.2 Structure of GSK's 2012 Annual Report

GSK's 2012 Annual Report⁵⁷⁷ (the Report) is 252 pages long and is divided into 5 parts as set out in Figure 27 below.

Figure 27 Structure of the GSK Annual Report 2012

Part 1 Strategic review Chairman's statement CEO's review Strategic review How we performed What we do, Where we do it Our market How we deliver Responsible business	Part 4 Financial statements Directors' statement of responsibilities. Independent Auditor's report Financial statements Notes to the financial statements Financial statements of GlaxoSmithKline plc prepared under UK GAAP.
Part 2 Financial review & risk Financial review Financial position and resources Financial review 2011	Part 5 Investor information Product development pipeline Products, competition and intellectual property Quarterly trends Five year record Share capital and share price Dividends Annual General Meeting 2013 US law and regulation Tax information for shareholders Analysis of shareholdings Shareholder services and contacts Glossary of terms and index
Part 3 Governance & remuneration Our Board Our Corporate Executive Team Chairman's letter Board report to shareholders Committee reports Remunerations Committee Chairman's letter Total remuneration for 2012 Pay performance for 2012 Remuneration Policy for 2013 Directors' emoluments and total remuneration Directors and Senior Management	

It is evident that the Report does not contain a stand-alone section reporting on the company's IP or patent portfolio. However, it contains a, "Products, competition and IP" section in "Part 5 Investor information" on pp229-231 towards the very end of the Report.

This structure in itself underscores the patent information visibility problem. The reader's attention is not specifically drawn to the patent information in the Report at any

⁵⁷⁷ <http://www.gsk.com/content/dam/gsk/globals/documents/pdf/GSK-Annual-Report-2012.pdf>

point. Rather, one has to analyse the whole Report very carefully to find the relevant patent information disclosed (other than in Part 5, much of which forms notes to the accounts).

GSK's Report was drafted to comply with legal requirements for listed company's disclosures using the former Business Review format as set out in Figure 28 below.

Figure 28 CA 2006 requirements for listed company disclosures

1. Fair review: business description and strategy (CA417(3)(a))
2. Principal risks and uncertainties (CA 417(3)(b))
3. Financial review: performance and position (CA 417(4)(a)&(b))
4. Trends and factors (CA 417(5)(a))
5. CSR: environment, employees, social & community (CA 417(5)(b))
6. Relationships: contractual and other arrangements (CA 417(5)(c))
7. Financial Key Performance Indicators (KPIs) (CA 417(6)(a))
8. Non-financial Key Performance Indicators (KPIs) (CA 417(6)(b))⁵⁷⁸

In summary, GSK's patent information disclosures are embedded throughout the Report as the company proceeds to address the disclosure requirements mandated by the CA 2006. This is not problematic for our purposes as we are interested in analysing the nature and content of the patent information disclosures which can be adapted to provide guidance for SMEs to report their patent information using the new Strategic Report format (discussed in section 6.1 above).

⁵⁷⁸ A Review of Narrative Reporting (2009) pp5-17

6.2.3 GSK's Financial Statements

In order to contextualise our discussion of GSK's narrative patent disclosures, we firstly consider the consolidated financial statements in Part 4, namely, the traditional financial reports. The Report discloses that as at 31 December 2012 GSK's intangible assets were worth £10,161 million (reproduced in Figure 29 below). Note 19 elaborates on these intangible assets.⁵⁷⁹ GSK's balance sheet was prepared using the historical cost convention and complies with application UK GAAP accounting standards. The figures and the accounting treatment were independently audited by PricewaterhouseCoopers LLP⁵⁸⁰ who confirmed that in their opinion "the Group financial statements give a true and fair view of the state of the Group's affairs".

Figure 29 GSK Consolidated balance sheet as at 31 December 2012

Non-current assets	Notes	2012£m	2011£m
Property, plant and equipment	17	8,776	8,748
Goodwill	18		
Other intangible assets	19	10,161	7,802
Investments in associates and joint ventures	20	579	560
Other investments	21	787	590
Deferred tax assets	14	2,385	2,849
Derivative financial instruments	41	54	85
Other non-current assets	22	682	525
Total non-current assets		27,783	24,913

Note that (a) intangible assets are of by far the greatest value in this balance sheet and (b) they appear to have increased in value by the greatest proportion between the 2 years. The accounting treatment in respect of 'Other intangible assets', (including patent assets) is set out in Note 19 at p146 of the Report and is reproduced below:

Other Intangible Assets

⁵⁷⁹ Supra [403] p139

⁵⁸⁰ Chartered Accountants and Statutory Auditors based in London.

Intangible assets are stated at cost less provisions for amortisation and impairments. Licences, **patents**, know-how and marketing rights separately acquired or acquired as part of a business combination are amortised over their estimated useful lives, generally not exceeding 20 years, using the straight-line basis, from the time they are available for use. The estimated useful lives for determining the amortisation charge take into account **patent** lives, where applicable, as well as the value obtained from periods of non-exclusivity. Asset lives are reviewed, and where appropriate adjusted, annually. Contingent milestone payments are recognised at the point that the contingent event becomes certain. Any development costs incurred by the Group and associated with acquired licences, **patents**, know-how or marketing rights are written off to the income statement when incurred, unless the criteria for recognition of an internally generated intangible asset are met, usually when a regulatory filing has been made in a major market and approval is considered highly probable.

Note 19 adopts the language of accountants and focuses on amortisation issues for intangibles which are affected by patent expiry dates. This is entirely appropriate, but an external stakeholder such as a lender would need to look further into the Report to find out more relevant information to identify the nature patent portfolio and GSK's IP management strategy ("the patent value story") for deriving value and cash flow from those assets.

6.2.4 GSK's CEO Review and Business Review⁵⁸¹

The CEO Review and Business Review are the critical sections of interest in terms of the content and level of patent information disclosure. Sir Andy Witty's CEO's Review on p3 does not specifically mention either IP or patents although it discusses R&D. The

⁵⁸¹ In future GSK Annual Reports this type of information will be required in the new Strategic Report format.

Business Review is a lengthy section of the Report contained in pp1- 86. On p10 under the heading “Innovation” GSK reports that:

At the core of our business model is the use of knowledge and the development of IP. We create value by researching, manufacturing and making available products that improve people’s health and well-being.

This statement is highly significant as it accentuates the value the Board ascribes to GSK’s IP which implies legal monopoly protection using patent rights. This theme is echoed under the heading “Sustainability” also on p10 where GSK reports:

Sustainability in our business performance is critically important if we are to deliver continued innovation and access to our products. We must produce profitable performance to ensure we remain competitive and have the funds to invest in our people and assets. A key element of this is an environment that appropriately rewards innovation across both **patent-protected** and branded products.

Patents are specifically mentioned for the first on p10. In a diagram on p11, GSK confirms that its assets include its “IP, people and infrastructure”, a phrase that implies patents. Information on GSK’s approach to IP is set out on p15 under the specific heading ‘IP and trade marks’ and is the second time GSK directly refers to patents and the following issues are disclosed:

- patent protection
- challenges to the validity of granted patents and legal proceedings;
- patent life (duration and expiration of the legal monopoly);

- generic medicine pressures; and
- competitors.

GSK's substantial patent portfolio protects its investment in the development of pharmaceuticals by giving it the exclusive right to sell the medicine while its patent is in force. A generic medicine contains chemically identical active ingredients (or within an acceptable bioequivalent range) as the original (usually patent-protected) GSK formula. However, a generic medicine is one that is manufactured and distributed in a jurisdiction in which GSK has no patent protection. Sometimes the formulation of the generic medicine may be patent-protected, but not the active ingredient. When a generic medicine is put on the market, market competition typically leads to substantially lower prices for both the original brand and the generic forms. Lower market price would negatively impact GSK's profits from sales. Given the substance of the patent information disclosure, it is reproduced below:

The process of discovering and developing a new medicine or vaccine takes many years and can cost up to £1 billion. IP and the effective legal protection of our IP – via **patents**, trademarks, registered designs, copyrights and domain name registrations – is critical in ensuring a reasonable reward for innovation and to fund R&D. (See pp33 to 38 for the pharmaceutical and vaccines development process.) **Patent** protection for new active ingredients is available in major markets, and **patents** can often be obtained for new drug formulations, manufacturing processes, medical uses and devices for administering products. Emerging markets are not all aligned on their approach to recognising **patent**-protected medicines.⁵⁸²

⁵⁸² Certain countries in emerging markets, India is one example, have excluded pharmaceuticals from patentability on public policy grounds to enable local manufacturers to make generic formulations that are sold at more affordable price points.

Although we may obtain **patents** for our products, this does not prevent them from being challenged before they expire. Further, the grant of a **patent** does not mean that it will be held valid and enforceable by a court. If a court determines that a **patent** we hold is invalid, non-infringed or unenforceable, it will not protect our innovation in that legal jurisdiction. Significant litigation concerning such **patent** challenges is summarised in Note 44 to the Financial Statements, 'Legal proceedings'. The life of a **patent** in most countries is 20 years from the filing date. However, the long development time for new medicines can mean that a substantial amount of this **patent** life has been eroded before launch. In some markets it is possible to have some of this lost time restored and this leads to variations in the amount of patent life available for each product we market.

In addition all of our commercial products are protected by registered trademarks in major markets, and our trademarks are important for maintaining the brand identity of our products. There may be local variations. For example, in the USA the trademark Advair covers the same product sold in the EU as Seretide. Trademark protection may generally be extended as long as the trademark is used by renewing it when necessary. We enforce our trademark rights to prevent infringements.

Generic Pressures

When **patents** expire on medicines, these medicines can be subject to competition from generic products.⁵⁸³ The effect of this is particularly acute in Western markets, where generic products can rapidly capture a large share of the market. As generic

⁵⁸³ When patents or other periods of exclusivity expire, manufacturers can apply to regulatory bodies to sell generic versions of GSK's original formulations.

manufacturers typically do not incur significant costs for R&D, education or market development, they are able to offer their products at considerably lower prices than branded competitors. The same pressures do not apply as significantly to vaccines, or to products where **patents** exist on both active ingredients and the delivery device, such as inhaled respiratory medicines.

Competition

Within the pharmaceutical industry, competition can come from other companies making **patent**-protected medicines with indications to treat similar diseases to our medicines, or from manufacturers making generic copies of our medicines following **patent** expiration. Our principal pharmaceutical and vaccines competitors include:

Abbott Laboratories, Amgen, AstraZeneca, Bristol-Myers Squibb, Eli Lilly, Johnson & Johnson, Merck, Novartis, Pfizer, Roche Holdings, Sanofi and Takeda. The Consumer Healthcare market has become more challenging. Consumers are demanding better quality and better value. Retailers have consolidated and globalised, which has strengthened their negotiation power. Our principle competitors in these markets include: Colgate-Palmolive, Johnson & Johnson, Procter & Gamble, Unilever, Pfizer and Novartis. In addition, many other smaller companies compete with GSK in certain markets.

Highly important information regarding the use of patents and how they affect GSK's business model is "signposted" in narrative form in the Business Review. However, to one with IP knowledge, the information is general in nature and by and large would apply to other pharmaceutical firms. Despite its generality, the disclosure is important because it contextualises how patent assets impact GSK's business strategy and crucially, highlights the

critical value of patent monopolies to the pharmaceutical business as a whole. This information acts as an introduction to those less familiar with patent rights and is relevant and appropriate for innovating SMEs. General patent information drafted in a few paragraphs in a way that contextualises the SME's "patent value story" would not be particularly onerous. This "signposting" aspect of patent information and strategy disclosure will be further developed in Chapter 7.

6.2.5 GSK's Investment in R&D

Information relating to R&D is regularly disclosed by innovative quoted firms and GSK is no exception. This is the heading under which one would most likely look for information about patents, given that patents flow from inventions created during the R&D stage of the product development cycle. At p32 of the Annual Report, GSK describes its "Investment in R&D".

In 2010, GSK became the first major pharmaceutical company to publish an internal rate of return (IRR) on our R&D investment, to indicate the positive value being realised from our choices within the R&D organisation. IRR provides a measurement offering an insight into how we manage our R&D business. This is based on a complex methodology that weighs the R&D costs incurred to discover and develop our late stage pipeline projects against the profits of new medicines and vaccines as they achieve regulatory approval and are made available to patients. It incorporates actual and predicted sales figures on probabilities of success for medicines in the pipeline. We also take into account an estimate of attributable R&D costs, estimated profit margins, capital investment and working capital requirements.

GSK uses the Internal Rate of Return (IRR) valuation methodology in order to fill the gap that traditional accounting for intangibles creates (as discussed in Chapter 4). The IRR figures used only for internal management purposes enables GSK to demonstrate to external information users the “positive (financial) value being realised from our choices within the R&D organisation” which would not otherwise be visible in the traditional style of accounts that are published. Publication of the IRR assists GSK to overcome the information asymmetry that arises from only publishing traditional financial accounts. Note however, that there is no mention of investment in patents specifically. GSK’s IRR valuation methodology is helpful, and of course if an innovating SME is in the position to devote sufficient financial and human resources to calculate its IRR, this would be a positive disclosure from a debt finance point of view. However, the IRR valuation methodology is complex (therefore expensive). It is unlikely that an innovating SME would have the resources to calculate this financial information. Further research is warranted to provide guidance as to standardised IRR-type methodologies.

6.2.6 GSK’s Strategic Review, Outlook, Risk Management Strategy and Global Patents Group (GPG)

This section of the Report provides a directional map for where GSK is headed and how it intends to get there. This involves the process of thinking about GSK and its related environment and internal business strategies as an integrated whole. Although not expressly stated, patent-protected products will be a key component in how GSK will achieve the aims stated in its “Outlook”. The following paragraphs analyse the patent information disclosures made by GSK.

The concept of “risk management” is introduced on p47 of the Business Review. Risk factors alert shareholders, potential investors and financiers to those issues that could materially alter a company’s performance and financial outlook. GSK discloses “protecting IP rights” as a key risk of the group.⁵⁸⁴ One’s attention is not immediately drawn to patent information subject matter. However, the “risk factors” disclosure that follows on pp78-86 is substantial, detailed and informative and provides specific information about GSK’s patent strategy. Certain aspects of how GSK manages its patent assets are described supplementing the general information provided earlier on p15. GSK introduces the principal risk factors and uncertainties it faces on p78, namely:

- (1) securing and protecting IP rights in products;
- (2) loss of patent monopoly rights either due to expiry or as a result of successful legal challenge;
- (3) patent enforcement;
- (4) the potential impact of the differing strength of legal protection for patent monopolies of developed countries versus lesser developed countries;
- (5) competition (e.g. from generic pharmaceutical manufacturers, such as those markets in which GSK does not have patent protection for its products); and
- (6) protecting confidential information.

These types of IP-related disclosures are directly relevant to innovating SMEs and are transferable to the new Strategic Report. It is the lengthiest patent information disclosure in the Business Review and this section has likely been prepared with the input of GSK’s GPG mentioned on p79. The narrative patent information is still quite general and applies to any

⁵⁸⁴ This specific ‘risk factor’ is reported in more detail following the Financial Review in a separate section of the Annual Report entitled ‘Investor Information’ on pp 78-79 of the GSK Annual Report 2012.

large pharmaceutical company that operates internationally. Nevertheless, it concisely highlights key risks associated with GSK's patent rights. This type of patent information disclosure could be emulated by innovating SMEs.

The corporate reporting regulations for listed companies are set out in the FSA's Disclosure and Transparency Rules⁵⁸⁵ and the UK Corporate Governance Code⁵⁸⁶ which require a discussion of the "mitigating activities" a company takes to address the risks and uncertainties identified above. The "Mitigating Activities" section on p79 is the first time the GPG, a key part of GSK's internal patent management strategy, is mentioned and demonstrates that GSK recognises the need to coordinate patent management strategy.

Mitigating activities include

The Group is supported by a global patents organisation within the legal group whose focus is to seek to ensure and protect the intellectual property rights of the Group. Beginning in 2011 and continuing through 2012, the GPG sought to implement improvements to certain time-driven processes and controls in order to better manage its ability to obtain and maintain patent protection for the Group's key assets and to minimize risk of invalidity or unenforceability of its patents. These processes relate to (1) implementing a new review process designed to help with obtaining and maintaining appropriate patent protection for key assets; (2) identifying opportunities for and obtaining patent term extensions; (3) ensuring timely payment of required renewal fees; and (4) ensuring appropriate listing of patents in the Orange Book⁵⁸⁷. The enhanced processes seek to ensure that all key patent applications are reviewed by senior management prior to worldwide filing and prior to grant and that senior

⁵⁸⁵ <http://fshandbook.info/FS/html/handbook/DTR>

⁵⁸⁶ <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-September-2012.pdf>

⁵⁸⁷ The Orange Book is the US Food and Drug Administration's publication which sets out Approved Drug Products with Therapeutic Equivalence Evaluations.

management approval is obtained prior to listing of **patents** in the Orange Book or the initiation of Abbreviated New Drug Application litigation. In addition, the Group has initiated a post approval **patent** review process to ensure ongoing review of the quality of **patents** after grant. The **GPG** maintains internal litigation processes designed to ensure successful enforcement and defence of **patent** with the goal of maintaining exclusive rights to market major products. The **GPG** monitors new developments in **patent** law in the major markets in which the Group operates to seek to ensure appropriate protection of the Group's assets. The Group (sometimes acting through trade associations) works with local governments to seek to secure effective and balanced IP protection designed to meet the needs of patients and payers while supporting long-term investment in innovation.

This disclosure signposts that the GPG is actively responsible for coordinating GSK's global patent management strategy including obtaining and maintaining patent protection for the Group's key assets and to minimise risk of invalidity or unenforceability of its patents. The existence of the GPG is noteworthy from a corporate governance perspective in terms of internal accountability and leadership. However, this disclosure really only hints at how GSK manages its patent assets. For example, there is no disclosure of:

- representation within the GPG;
- local patent strategy for key regions including the UK;
- no designation of a Chief IP Officer or a key manager responsible for the global or regional patent portfolio(s); or
- whether responsibility for patent strategy is divided by product or otherwise.

To demonstrate leadership and accountability, a company should disclose who is responsible for coordinating and managing the firm's patent strategy and whether external advisors' advice and expertise is obtained (e.g. patent attorneys or IP solicitors).

6.2.7 GSK's patent litigation (actual and potential)

In the Financial Review, GSK mentions "Legal and other disputes" (Notes 29 and 44) at p64 which refers to patent litigation. Patent litigation presents a financial risk for GSK as significant company revenue is endangered when a patent is challenged. This is so even if the legal proceeding is brought to enforce the patent against an infringer because the defendant's response usually includes a bare denial of infringement and a counterclaim to revoke the GSK patent on the grounds that it is invalid. A typical patent case will last for over a year with the associated legal costs and the possibility of an appeal to extend the proceeding. It is not unusual for a pharmaceutical company to be involved in a number of legal proceedings at any one time. Thus, the validity of key corporate assets, namely patent rights, that are the result of substantial investment in R&D over the years, is at stake. In Chapter 4 we saw that patents have the status of a cost centre for a company (a liability on the balance sheet) and as a minimum have an economic replacement value. Patent litigation involves assessing a large number of uncertainties some of which are common to all litigation while others are unique to patent rights. On p65 GSK disclosed the following legal risks:

Like many pharmaceutical companies, we are faced with various complex product liability, anti-trust and **patent** litigation, as well as investigations of our operations conducted by various governmental regulatory agencies. Throughout the year, the General Counsel of the Group, as head of the Group's legal function, and the Senior Vice President and Head of Global Litigation for the Group, who is responsible for all

litigation and government investigations, routinely brief the Chief Executive Officer, the Chief Financial Officer and the Board of Directors on the significant litigation pending against the Group and governmental investigations of the Group.

These meetings, as appropriate, detail the status of significant litigation and governmental investigations and review matters such as the number of claims notified to us, information on potential claims not yet notified, assessment of the validity of claims, progress made in settling claims, recent settlement levels and potential reimbursement by insurers.

The meetings also include an assessment of whether or not there is sufficient information available for us to be able to make a reliable estimate of the potential outcomes of the disputes. Often, external counsel assisting us with various litigation matters and investigations will also assist in the briefing of the Board and senior management. Following these discussions, for those matters where it is possible to make a reliable estimate of the amount of a provision, if any, that may be required, the level of provision for legal and other disputes is reviewed and adjusted as appropriate.

Note 44 Legal Proceedings on pp210-217 under the heading ‘IP’ discloses several patent litigation proceedings and the outcome to date. The patent litigation disclosed relates to ten of GSK’s pharmaceutical products. In brief, the litigation involving GSK mainly concerns: (1) enforcement of patent rights against infringers; and (2) defending the validity of its patents. This disclosure is the most detailed patent information in the Report, yet is succinct and informative. In the main, GSK states its involvement in the patent or licence-related litigation and provides a brief background and description of each proceeding. A sample of GSK’s style of patent disclosure narrative is set out below in Figure 30.

Figure 30 GSK Patent litigation proceedings as at 2012

Product affected	Type of litigation	Disclosure
<i>Benlysta</i>	<p>Patent validity proceedings ongoing in the UK in 2013 and in the CJEU in 2014.</p> <p>Biogen patent revoked by Technical Board of Appeal at the EPO with no effect of GSK's marketing of Benlysta.</p>	<p>In September, 2012, the UK Court of Appeal refused an appeal by Eli Lilly and Company ('Eli Lilly') asserting that Human Genome Sciences, Inc. ('HGS') UK Patent No. EP0939804 for <i>Benlysta</i> was invalid on the grounds that it lacked the necessary information required to work the invention described in the claims which covered antibodies (the 'antibody claim insufficiency argument'). The UK High Court and the UK Supreme Court previously had decided that the patent was valid on all other grounds. The initial revocation was brought by Eli Lilly in 2006 on the patent which claims the cytokine BLyS and any antibody that binds to BLyS, such as <i>Benlysta</i> (belimumab). Eli Lilly has petitioned the UK Supreme Court to hear an appeal on its antibody claim insufficiency argument. The decision of the UK Supreme Court whether to grant the appeal is pending. Eli Lilly has also requested a declaration that any Supplementary Protection Certificate ('SPC') filed by HGS to extend its UK patent based upon Eli Lilly's anti-BLyS mAb will be invalid. On 3 August 2012, a decision was issued by the UK Court of Appeal to refer questions to the Court of Justice of the European Union ('CJEU') relating to whether the product is protected by a basic patent in force. The judge ordered that the remaining issues, which are not included in the referral, should go to a fact-finding trial at the UK High Court. A trial date has been set for July 2013 at the UK High Court. The CJEU reference is likely to be heard in early 2014.</p>

Litigation is fraught with uncertainty, which is inherent in situations where there is more than one possible outcome.⁵⁸⁸ A company must take care to ensure that their corporate disclosure of the risks involved in patent litigation provides a "fair summary" of the material information relied on by the board of directors in their decision-making. The first step is to identify the uncertainties and be aware of what can happen. Next, the company should assess the associated risks as to the likelihood or probability of each possible outcome occurring.⁵⁸⁹ A company should also consider the settlement value of the litigation so that it can assess risk and cost of pursuing or defending an action weighed against the cost to settle the action. Is the patent litigation worth the expense? If patent rights are uncertain, pursuing settlement and negotiating a licence with the alleged infringer may be the best option in order to avoid the patent being invalidated. Note that GSK does not specifically disclose how much it spends on legal fees nor do they quantify the potential damage in relation to each case.

Nelson and Pritchard in their 2007 study concerning firms' voluntary disclosure of litigation risk examine the characteristics of narrative corporate disclosures. They found that

⁵⁸⁸ Poltorak, A. and Lerner, P. 'Introducing litigation risks analysis' (May 2001) Issue 109 *Managing Intellectual Property*, p1

⁵⁸⁹ Ibid p2

firms subject to greater litigation risk (such as GSK and its patent litigation) disclose more cautionary language, update the language more from year to year, and use more readable language.⁵⁹⁰ However, they also found that firms should take care to remove cautionary language in their narrative disclosure when litigation risk decreases.⁵⁹¹

In formulating a patent litigation risk disclosure strategy, an innovating SME must contend with uncertainty regarding the future. Actual patent litigation should be voluntarily disclosed to provide a fair view. However, if there is no actual litigation, the SME could carefully consider whether there is any need to disclose potential litigation and if so, use cautionary language in doing so. Innovating SMEs should draft the disclosure using plain English and minimise the use of technical language and legal terms.⁵⁹²

Evaluating patent litigation risk inevitably leads a company to consider the quality of its patent portfolio. Poor-quality patents, perhaps due to inadequacies in patent examination and issuance quality from patent offices (discussed in Chapter 2) leads to those patents being prone to litigation risk. Lenders need to understand that poor-quality patent and careless patent-granting contributes to increased financial and legal risk.⁵⁹³

In summary, patent litigation risk has important implications for innovating SME corporate disclosure policies.⁵⁹⁴ Making decisions about patent litigation is about managing legal risk. The costs of patent litigation can be disruptive and adversely impact normal business operations, especially in SMEs.⁵⁹⁵ As the cost of patent litigation is high and the outcome will have a financial impact on the business, SMEs should seriously consider all the effects of legal proceedings. On the other hand, the rewards for well-organised and financed

⁵⁹⁰ Nelson, K. and Pritchard, A. 'Litigation Risk and Voluntary Disclosure: The Use of Meaningful Cautionary Language' (August 2007) *2nd Annual Conference on Empirical Legal Studies*, p1

⁵⁹¹ Ibid

⁵⁹² Ibid, p7

⁵⁹³ Martin, D. and Beling, P. 'Patent Litigation Risk Characterization: Prospective identification of financial risk in patent holdings' (2004) M-Cam draft, pp4-5

⁵⁹⁴ Ibid p3

⁵⁹⁵ Patent Litigation: is it Worth the Expense? (1 April 2006) Vol 26, No. 7 *Genetic Engineering & Biotechnology News*

patent enforcement action can be substantial. In the long term, the strategic benefits of strong patent enforcement include a deterrent effect on other potential infringers of the patent in question and increase the likelihood that future patent disputes are settled out of court.⁵⁹⁶ An innovating SME should be sensitive to changes to their litigation risks. Disclosure must be current and SMEs must update their disclosed litigation risks annually. The innovating SME should avoid “boilerplate” litigation risk disclosure which is a concern to corporate regulators and should strive to disclose information that is relevant to financial risk. Ultimately, what is important for the innovating SME is to make the effort to disclose and demonstrate to the financier the company’s appreciation of the legal risks that may arise in connection with patents and that it is actively managing those risks.

6.2.8 GSK’s confidential information

The possible disclosure of confidential information is a hidden risk of patent litigation. As part of the discovery process, the parties may be required to divulge sensitive product development, manufacturing, marketing or pricing information to defendants and potentially to the public, although court procedures may be implemented to preserve confidentiality. Whereas GSK discloses actual litigation to which it is a party, GSK reports two further specific business risks including “Potential Litigation” and “Protecting our Information” on pp84 and 85 respectively. The latter focuses on how GSK protects its confidential information. This is an important component of patent strategy, as in order to be patentable, the legal requirement under the PA 1977 is that the invention must be “new”. Section 2(1) PA 1977 provides that an invention shall be taken to be “new” if it does not form part of the state of the art. An invention lacks novelty if the specified combination of features has already been anticipated in a disclosure. In *SmithKline Beecham Plc’s (Paroxetine*

⁵⁹⁶ Supra [592] p3

Methanesulfonate) Patent,⁵⁹⁷ the House of Lords held there were two requirements for anticipation: prior disclosure and enablement. These are distinct concepts each of which has to be satisfied and each of which has its own rules. If any features of GSK's potentially patentable inventions are made public before a patent application has been filed, the opportunity to be granted a patent will be lost. This is a serious risk for a company that relies on patent-protected products. GSK's disclosure regarding its confidential information on p85 is set out below:

Protecting our information

Risk description: Risk of exposing business critical or sensitive data due to inadequate data governance or information systems security.

The Group relies on critical and sensitive data, such as corporate strategic plans, personally identifiable information, **trade secrets and IP**, to drive planning and operations. Security of this type of data is exposed to escalating external threats that are increasing in sophistication and changing from a goal of disruption to being financially or politically motivated. Failure to implement appropriate safeguards to adequately protect against any unauthorised or unintentional access, acquisition, use, modification, loss or disclosure of this critical or sensitive data may adversely impact the Group's ability to maintain patent rights and competitive advantages and may result in legal non-compliance resulting in fines and penalties or inability to sell product in a particular market.

Mitigating activities include

The Group assesses changes in our risk environment through briefings by government agencies, subscription to commercial threat intelligence services and security

⁵⁹⁷ [2006] RPC 10

information sharing with other companies - both in our industry and beyond. The Group's policies and controls on information protection are regularly reviewed and employees are routinely trained. The Group has dedicated information security expertise and resources. In response to the changing external risk environment, the Group has implemented a global programme to further increase business awareness of information protection requirements, further define minimum information security expectations for third-party agreements, implement additional technical controls to protect data, and improve its security event monitoring...

GSK's disclosure is general and concise, signifying that the company recognises the issue and has a programme in place however, it does not disclose who is responsible for managing its confidential information.

6.2.9 GSK's information for investors: products, competition and IP

GSK provides an Investor Information section on pp224-247 entitled "Products, Competition and IP" beginning at p229 with a table containing 42 entries setting out the relevant patent expiry dates in the USA and EU. A sample of the first entry of patent expiry information is set out below in Figure 31.

Figure 31 Extract from GSK Investor Information, Products, Competition & IP table

Products, Competition and IP

Products	Compounds	Indicator(s)	Major Competitor Brands	Patent Expiry Dates USA	Patent Expiry Dates EU
<i>Respiratory</i> Veramist	fluticansone propionate	rhinitis	Nasonex	2021	2023
Flixotide/Flovent	fluticansone propionate	asthma/COPD	Qvar, Singulair	Expired compound (2016) (<i>Diskus</i> device) 2013-2025 (HFA-device/formulation)	Expired (compound) (<i>Diskus</i> device) 2017 (HFS-device/formulation)

The impact of patent expiry on GSK's pharmaceutical business is critical information for investors. Once a pharmaceutical enters the market, patent protection can result in high profits, with gross profit margins exceeding 90%. When a patent that covers a product expires, generic manufacturers offer the products at prices reported to average about 30% of the price of the brand-name originals. Once a pharmaceutical product loses patent protection, lower-price generics quickly siphon off as much as 90% of sales.⁵⁹⁸ The pharmaceutical industry is now experiencing the long-expected and much-discussed patent cliff.⁵⁹⁹ A notable 2012 patent expiration for GSK is the patent covering the diabetes drug Avandia (rosiglitazone). Further, as a result of GSK's past corporate disclosures, industry analysts confirm that over the next few years GSK will lose patent protection on its anti-triglyceride product Lovaza (omega-3-acid esters), the benign prostatic hyperplasia drug Avodart (dutasteride), the HIV/AIDS product Combivir and asthma medication Advair. In 2010 these drugs combined accounted for over \$1 billion USD in earnings in the United States alone. A generic form of Combivir is already available in the United States.⁶⁰⁰ This is a significant "patent cliff" that will result in additional generic competition for GSK, potentially eroding millions of pounds of turnover in the near future. Disclosure of patent expiry dates is critically important for GSK shareholders and potential investors (equity financiers). In terms of the type of information contained in Figure 31 above, GSK's disclosure lacks detailed information as to how they will optimise earnings before a significant patent expires. There is no column in the table or commentary addressing this issue (e.g. through raising prices, enhanced advertising, a complementary pipeline product or outsourcing to lower cost regions of the world). A lengthy "Pharmaceuticals and Vaccines

⁵⁹⁸ DeRuiter, J. and Holston, P. 'Drug Patent Expirations and the "Patent Cliff" (20 June 2012) *US Pharmacist*, Jobson Publications

⁵⁹⁹ A 'patent cliff' signifies the potential sharp fall in revenues when a patent expires on one or more important company products - a company's revenues may "fall off a cliff" because these products can be reproduced and sold at much lower prices by competitors. While the term applies to any industry, recently a "patent cliff" has come to be linked with the pharmaceutical industry.

⁶⁰⁰ *Supra* [597]

product development pipeline” table is set out in pp225-288. This discloses investment in new pharmaceutical inventions that GSK believes will address unmet pharmaceutical needs and that are also profitable and represents GSK’s strategy for minimising the impact of the revenue loss attributable to patent expiry in the near future and to maintain profitability. The table headings and column structure is set out in Figure 32 below.

Figure 32 Pipeline Pharmaceuticals and Vaccines

Compound	Type	Indication	Phase	Marketing Authorisation Application (Europe)	Achieved Regulatory Review Progress New Drug Application (NDA) USA / Biological Licence Application (BLA)
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There is no additional narrative disclosure apart from the “Pipeline table” which provides certain limited information concerning future actions, prospective products or product approvals which are intended to enhance future performance. Nor is there any narrative disclosure of pipeline pharmaceuticals with the profit potential of Lovaza, Avodart, Combivir and Advair emerging in the near future. There is no discussion of patent applications at all. Incredibly, GSK’s board has invested £4 billion GBP in its R&D pipeline but has refrained from making any express forward looking statement regarding its pipeline in this section.⁶⁰¹ However, much earlier, on p3 in the CEO’s Review, Sir Andrew Witty summarises the GSK’s R&D pipeline as follows:

In R&D, the Group made significant progress in 2012. We now have six key new products under regulatory review and expect Phase III data on 14 assets in 2013 and 2014. In total, over the next three years, GSK has the potential to launch around 15 new medicines and vaccines globally.

⁶⁰¹ GSK reports on p8 of the Report that in 2012 the company spent £3.5 billion GBP before non-core items and £4.0 billion GBP in total their search to develop new medicines, vaccines and innovative consumer products.

Further on p10 under the heading “Innovation” GSK discloses:

In 2012, we invested £3.5 billion in core research and development of new medicines, vaccines and consumer products, and we are currently evaluating around 50 investigational medicines for diseases such as cancer, diabetes, heart disease and respiratory illnesses. Over the next three years, we have the potential to bring around 15 new medicines to patients.

One has to carefully analyse the table and then draw inferences and make independent conclusions from the information presented at either end of the Report. This is time-consuming and unhelpful. GSK does not “join the dots” for the reader and expressly explain with specificity how it will replace blockbuster pharmaceuticals whose patents are expiring with new pharmaceutical products that have the potential to become big sellers.

This weakness narrative patent information disclosure is echoed by auditing firm KPMG International which confirms that in general, “Disclosure of R&D pipelines remain relatively limited, influenced by the problems and lack of success of recent years, and competitive pressure,” and, “We do not see the issue of scientific risk yet being embraced: companies’ disclosure is, in general, limited and the governance of R&D merits a higher profile.”⁶⁰² Further, according to Ed Giniat Global Chair, KPMG’s Pharmaceutical Practice US, as significant revenue is at risk when a patent is litigated or expired, replacing these revenue streams magnifies the need for successful R&D.⁶⁰³ For instance, GSK could make it more explicit that its strategy is to focus on growth in emerging markets to mitigate patent losses in developed markets or to acquire new patent portfolios with earlier product launch

⁶⁰² *An Overview of Risk and Disclosure* (April 2012) KPMG, pp2-3

⁶⁰³ *Ibid*, p7

schedules from other companies.⁶⁰⁴ On the other hand, adopting a selective or restrictive approach to R&D pipeline disclosure, by limiting detailed discussion of early stage R&D, arguably is sensible given the high failure rate. Nevertheless, many investors and financiers hold the view that increased transparency is useful for assessing the relative attractiveness and competitive positioning of the R&D pipeline.⁶⁰⁵ Ultimately, from a corporate governance point of view, additional relevant and genuinely useful information would assist with an assessment of the directors' stewardship of GSK's IP assets.

GSK does not disclose information about discontinued R&D projects or patents it has let lapse. According to KPMG, disclosure of discontinued projects remains rare and that in highly scrutinised industry, success and failure will be readily apparent to interested investors and financiers; it should enhance the reputation of companies to disclose failures.⁶⁰⁶ Bearing in mind that R&D is crucial to the future of the business and accounts for a high percentage of a company's annual expenditure, more detailed, "joined up" disclosure of R&D, relevant IP and patent information is warranted.

6.2.10 GSK's board of directors

The board of directors is collectively responsible for the long-term success of the company.⁶⁰⁷ GSK has a competent and well-qualified Board, and while Moncrief Slaoui is GSK's Chairman of R&D, there does not appear to be a director (executive or non-executive) who is a qualified patent attorney or IP law specialist. According to the International IP Strategists' Association (INTIPSA) it is no longer adequate to simply rely on the traditional role of the Chief Legal Officer or Chief Technology Officer to assume leadership and responsibility for IP and patent matters. In certain medium and large companies, especially

⁶⁰⁴ 'Glaxosmithkline undervalued say analysts' (11 December 2013) at <http://www.morningstar.co.uk/uk/news/114764/glaxosmithkline-undervalued-say-analysts.aspx>

⁶⁰⁵ Supra [603] p16

⁶⁰⁶ Ibid p18

⁶⁰⁷ UK Corporate Governance Code, p8

in the US, responsibility for IP matters now rests with the Chief IP Officer (CIPO) or the Director of IP operating at the intersection of IP, technology and business. The IP Director needs to understand where IP fits into the business and overall commercial reality.⁶⁰⁸

INTIPSA advises that:

There is a direct parallel between the CIPO role and that of the CTO, both having a strong emphasis on advising and influencing. The CIPO must be able to identify strategic IP issues, trends, and industry sector issues plus be able to lobby internally and externally if and when required. The CIPO should be a leader in IP strategic thinking, including in such key areas as the acquisition of IP, IP portfolio optimisation, setting goals for IP exploitation and understanding IP risk mitigation. This will include litigation and settlements. Understanding the business environment from an IP perspective, interpreting that for the business and providing foresight is also crucial. Being able to communicate IP thinking to the company's other executives as well as externally is a key responsibility.⁶⁰⁹

GSK, or any firm with a business model that relies heavily on patent protection, should consider appointing a director with patent expertise (e.g. either a patent attorney or an IP solicitor or ideally both) to support the Board's decision-making with respect to these valuable corporate intangible assets. A cost-benefit analysis would be helpful here in relation to innovating SMEs with limited resources who could engage the services of competent IP professionals or consultants as needed.

⁶⁰⁸ 'The Role of the Chief Intellectual Property Officer' (2013) INTIPSA, p2 at <http://www.intipsa.com/wp-content/uploads/2013/01/INTIPSA-Tips-The-role-of-the-CIPO1.pdf>.

⁶⁰⁹ Ibid, p3

6.2.11 Increased transparency

In addition to the matters discussed above, increased transparency is needed in the following two areas:

Depth of patent portfolio

Despite its patent assets having growing strategic importance, GSK does not report specifically on the depth of its patent portfolio (number of patents, patents per jurisdiction etc.), patent families, the strength of particular patent pools or sales and acquisitions of patents. A search of *Esp@cenet*, the EPO's world-wide patent database confirms that 6147 results were found for GSK as the applicant.⁶¹⁰ Patents have also been filed by several of GSK's international subsidiaries within the corporate group. The size and quality of a company's patent portfolio will have a direct impact on its reputation, return on investments and access to the market. All patents are not equal in value or importance and potential investors or financiers will need to use additional qualitative information to rank the expected value of the patents. But the narrative corporative reporting provides little insight into the "big picture" of GSK's patent portfolio. With respect to innovation, patent assets are seen as a clear signal of a company's competitiveness and more transparency in this area would be welcome. Indeed, reports suggest that GSK is undervalued.⁶¹¹

Key researchers, teams & inventor's rights

GSK does not present any information about the expertise and performance of key prolific and influential R&D employees and/or those named as inventors in GSK patents. The IC of this important group of GSK staff does not feature. The role of key R&D personnel is critical not only to innovation but they may also act as witnesses in patent

⁶¹⁰ Search carried out on 11 February 2014.

⁶¹¹ Supra [603]

litigation. A risk to GSK's financial results is potentially that personnel named as inventors or co-inventors may be entitled to compensation under s.40 PA 1977 (as amended) if the patent was of "outstanding benefit" to GSK (the employer). In *Kelly & Chiu v GE Healthcare Ltd*⁶¹² two employee medical researcher/inventors were awarded "air share" compensation, namely a combined amount of 3% of GE's £50 million GBP profit. Whether or not this type of issue is a reportable "principal" risk warranting disclosure is an issue for GSK's Board. In the UK post-*Kelly*, the Board may also need to consider whether and how it should implement an appropriate inventor compensation scheme.

6.2.12 GSK's patent value story

As a listed company, GSK's patent disclosure is extensive when compared to other companies. However, one must comb through the entire 2012 Annual Report in order to collate patent-related information. The "patent value story" is not assembled into one section for ease of reference, largely because GSK follows the Business Review structure and must report on a myriad of matters in addition to patent information, thus the structure could be improved in this regard.

In several instances detailed patent information e.g. expiry and litigation is presented in simple tables that arrange patent information in rows and columns with a prominent header row and typically using a wide format (as opposed to a narrow format). As a communication tool a table enables a form of generalisation of patent information whilst providing a familiar way to communicate data. GSK does not appear to use any other visuals to illustrate or disclose its patent information.

Although the Index to the Report lists IP, one suggestion is to simply include a "Patent Information" heading and reference to the relevant page numbers in which

⁶¹² [2009] EWHC 191 (Pat)

disclosures occur. Another suggestion is to have a standalone “Patent Information” section in the “Investor Information” part of the report.

From a corporate governance point of view, more narrative information is needed on the effect of patent expiry on GSK and what the company is doing to escape the patent cliff and potential declining revenue. This is needed to assess the current Board of Directors stewardship of its patent assets and strategy. The new Strategic Report should enable GSK and other patent-owning firms to present their business models, strategy and objectives, principle risks and future outlook reliant, less generally and more completely, together with a higher degree of detailed patent information.

6.3 Corporate disclosure: Evaluating the findings of the *Banking on IP? Report* and the *Final Report from the Expert Group on Intellectual Property Valuation*

The *Banking on IP?* report only briefly touches on corporate disclosure of IP or patents under the CA 2006 stating, “Calculation of estimates [of value] for micro, SMEs is further complicated by the filing of abbreviated accounts”.⁶¹³ This point is not developed further in the remainder of the report. Recommendation 5 does however suggest a more transparent marketplace will transform IP and intangibles as an asset class.

The EC *IP Valuation* Report published in March 2014⁶¹⁴ takes up the point of corporate narrative reporting more directly in section 4.4 ‘Possibilities for complementary reporting of IP and IPRs’. It suggests that disclosure might include:

Examples of useful information on IP/IPRs can be the number of patents, the description and the number of patents actively employed in firm activities, the time to

⁶¹³ Supra *Banking on IP?* [18] p25

⁶¹⁴ The March 2014 *IP Valuation Report* does not reference the 2013 *Banking on IP?* Report or refer to it in the bibliography.

expiration for the major IPRs, the description and number of patent submissions and the associated degree of success and the like. Sometimes non-financial indicators are mixed with financial data to create new insightful information. Examples of such indicators for the IPO/IPRs and research area are sales per patent (or family of patents) or revenue from the products/services introduced from R&D in the last 3-5 years.⁶¹⁵

The *IP Valuation* report also acknowledges the poor situation as to the recognition, measures and disclosure of IP and concludes that the present reporting and information frameworks are in urgent need of updating⁶¹⁶ that the filing of a “management report”, detailing IP and IP value in addition to financial statements is recommended.⁶¹⁷ The Expert Panel proposes:

...the introduction of an additional IP reporting section in corporate information and data about IP and IPRs as a section of a company’s financial statement. The enrichment of the management report by more information about IP and/or a separate statement about IP are other possible actions... Yet we need to consider the fact that small companies (small in terms of Article 3 paragraph 2 of the EU Accounting Directive) are not required to publish a Management Report. However it could be seen as a first move in the right direction for collecting more and better information about IP/IPR in Europe.⁶¹⁸

⁶¹⁵ Supra *IP Valuation Report* [20] p41

⁶¹⁶ Ibid, p44

⁶¹⁷ Supra *IP Valuation Report* [20] pp45 and 65

⁶¹⁸ Supra *IP Valuation Report* [20] pp65-66

These conclusions and recommendations directly support the approach taken in this thesis with respect to innovating SMEs - disclosure of their patent information and strategy is recommended to supplement the traditional financial statements. The Expert Panel has not, however, fully considered in detail how companies, especially SMEs who are typically exempt from corporate narrative reporting, should make such disclosure. This thesis further develops and advances these precise issues with respect to UK SMEs and the UK patent ecosystem. Chapter 7 considers whether such disclosure should be legally mandatory or voluntary.

6.4 Conclusion

The corporate financial reporting space has been dominated by a focus on a company's tangible assets, to such an extent that equity investors focus on a single metric – the “earnings-per-share” number. The narrow and incomplete focus on short-term financial performance is only of interest to short-term equity investors who focus on the regulatory disclosure requirements for shareholders, as opposed to the type of information of interest to other stakeholders such as financiers and lenders. There is a new and more holistic view, as well as an unmistakable movement for companies to disclose IP and patent information, that escapes the accounting lens, but can be captured by the corporate governance lens. This is why company law should take the lead to provide a “true and fair” view of a company's internally generated patent assets.

Relatively little research has been done in the field of narrative corporate reporting and specifically, patent information and strategy disclosure. There is a great demand for high-quality interpretative research which is able to build knowledge from observation of

phenomenon within a contextually rich environment.⁶¹⁹ The GSK case study considered the content and structure GSK's disclosure of patent information in its 2012 annual report and was designed as an inductive qualitative research to provide insight into corporate narrative reporting practice. It does not entail a claim for "applicability" that would warrant courts to apply the results directly in litigation.⁶²⁰ GSK was selected to enable us to analyse a high level of patent information disclosure in terms of breadth, depth and scope. As GSK's patent information disclosure is thought to be of a very high standard, given the company's access to best expert advice in preparing its annual report, it provides us with some knowledge as to best practice in terms of disclosure in the UK typical in the pharma sector. Relevant aspects GSK's patent information disclosure could be emulated by innovating SMEs on a voluntary corporate reporting basis, dependant on the cost to produce such information as discussed in Chapter 5. The case study found that GSK disclosed the following types of patent information in narrative form:

- generalised patent information contextualised to signpost the value of patent protection and patent monopolies to the pharmaceutical business;
- a summary of how the Internal Rate of Return on R&D investment is calculated;
- key risks arising in connection with GSK's patent rights:
 - (i) securing and protection patent rights;
 - (ii) patent life (duration and expiration of the legal monopoly)
 - (iii) challenges to the validity of granted patents and legal proceedings;
 - (iv) patent enforcement activities;
 - (v) competition from generic medicine manufacturers;

⁶¹⁹ Schell, C. 'The Value of the Case Study as a Research Strategy' (1992) *Manchester Business School* p14 at <http://www.finance-mba.com/Case%20Method.pdf>

⁶²⁰ Hwaidi, M. 'Why and How Empirical Study in Commercial Law?' (2014) *Annual Conference of Socio Legal Study Association* at Robert Gordon University, p3.

- (vi) confidential information; and
- patent management information including its GPg.

As a form of research, the case study is skill-intensive on the part of the researcher, and unparalleled for its ability to consider a single research question within an environment rich with contextual variables.⁶²¹ The GSK 2012 Annual Report case study serves as exploratory research, but the scope for application of the evidence-based patent information disclosures is much greater as the findings are transferable to innovating SMEs and other corporates. This research helps provides a new understanding of how narrative corporate disclosure of certain types of patent information may increase transparency and reduce asymmetric information regarding the financial accounting metric currently used to value key corporate patent assets and investment in R&D. The knowledge gained from the exploratory case study and other literature in earlier chapters will be applied in Chapter 7, where such knowledge is comprehensively used as the foundation for constructing a streamlined (or simplified) patent information disclosure model for innovating UK SMEs.

⁶²¹ Supra Schell [618] p14

7 Voluntary corporate narrative IP information and strategy disclosure

The common wisdom is that “you manage what you measure”. The corollary is, of course, “out of sight, out of mind”.

Mr W. Richard Frederick,
Principal Administrator, Organization of
Economic Cooperation and Development
(OECD)

Introduction

In Chapter 2 we saw that the patent ecosystem, both globally and in the UK, has undergone important changes in the past few years. Changes have been set in motion by the advent of ever-increasing technological innovation, resulting in more granted patents and the ensuing economic value attributed to intangible corporate assets which remain largely hidden in traditional accounting statement formats. Applying for and being granted patents positively affects perceptions of innovating SMEs and improves valuation estimates in early financing rounds (the more patents owned, the higher the likelihood of attracting finance).⁶²² Large publicly listed firms are also shedding some light via patent information disclosure in their statutory corporate narrative reports. Chapter 6 presented a case study involving GlaxoSmithKline (GSK), a global firm with a sizeable patent portfolio, that critically analysed the nature and content of the narrative patent information disclosures made in the company’s 2012 annual report. The goal of this Chapter is to build on the narrative content and style of the Danish and German ICS method and drafting mechanics, the GSK patent information disclosure, and other relevant literature, to derive a new bespoke model and specific guidance for innovating SMEs as to the type of patent information they may wish to

⁶²² Hsu, D. and Ziedonis, R. ‘Patents as Quality Signals for Entrepreneurial Ventures’ (2007) Paper presented at *DRUID Summer Conference*

voluntarily report in the Strategic Report of company's annual return.⁶²³ The thesis put forward that disclosing narrative qualitative (non-financial) patent information ensures that the value of the innovating SME's patent portfolio is neither "out sight" nor "out of mind" and this will assist stakeholders such as lenders to identify patent assets and link them to the value and growth of the business. However, as explained in Chapter 5, if a company is entitled to rely on the small companies exemption, delivery of a Directors' Report to Companies House is optional.⁶²⁴ In many private SMEs, the only member is a sole director⁶²⁵ and to date, from a corporate governance perspective, it has been seen as a completely unnecessary administrative burden to require such directors to prepare a Directors' Report for themselves which no one else sees. As we also know, from an innovation perspective, a significant problem for both investors and financiers is that patent assets lack transparency in the company's annual accounts and without relevant useful information finance decisions falter. On a positive note, according to Frederick:

There appears to be a trend to report beyond the limits of what traditional accounting standards require, and include a broader set of important value drivers. The question has moved from whether this information is important and whether it needs to be reported, to how to best report it.⁶²⁶

In the modern patent ecosystem, the need for increased voluntary disclosure of patent information by SMEs is acute. What is less clear is how and what patent information

⁶²³ Once every year, every company must deliver a return to Companies House containing relevant information about legally mandated features of the company's affairs: s854(1) CA 2006. Refer also Chapters 5 & 6. See also *supra* [478]

⁶²⁴ Sections 444(1) and 444(a) CA 2006. See also *supra* [478].

⁶²⁵ The "one-man" company. Alternatively, the sole member of the company may be the nominee of the director.

⁶²⁶ Frederick, W.R. 'Recent Developments in IC Reporting and their Policy Implications' (2009) *OECD Education Working Papers*, No. 17, OCED Publishing. This paper touches on the UK Operating and Business Review on pp32-36 and predates the new Strategic Review.

innovating SMEs should voluntarily disclose. Chapter 7 examines how to uniformly, succinctly and cost-efficiently disclose relevant patent information and strategy that has been subject to director-level review. This requires the development of a conceptual framework leading to a new model for voluntary patent information reporting.

Section 7.1 summarises the views on solving the intangibles reporting problem addressed in earlier chapters and sets out the rationale for the author's preferred approach. Arguments are made in favour of voluntary patent information and strategy disclosure as opposed to mandatory disclosure.

Section 7.2 presents an original user-friendly *Essential, Desirable & Optional Patent Information and Strategy* model, the foundation for a coherent shape for SMEs to voluntarily report the "patent asset value story" in narrative form in the Strategic Report using key qualitative (non-financial) patent information indicators. The new "business triage style"⁶²⁷ three-tier model is compared and contrasted with the Danish and German ICS models, the GSK patent disclosures and other literature.

Section 7.3 considers potential criticism of enhanced voluntary patent information disclosures by innovating SMEs.

Finally, while the new disclosure model is a starting point, it begs the question: How should patent information and strategy disclosure be facilitated? In section 7.4 we identify the relevant stakeholders that need to be involved in assisting and advising innovating SMEs to prepare their corporate narrative disclosures.

⁶²⁷ Using the same triage categories employed by military medical and disaster medical services, business processes are categorized as essential/critical (red) important/urgent (yellow), or optional/supportive (green). See Zich, J. 'Business 911: Triage for Trying Times' (June 1994) Stanford Business School Magazine

7.1 Views on solving the intangibles reporting problem

This thesis has explored the three approaches to solving the hidden intangibles and corporate reporting problem which are summarised below.

7.1.1 Overhauling the fundamental accounting treatment of intangibles

Chapter 4 argued that it is necessary to implement fundamental changes to the traditional accounting system to address the shortcomings of IAS 38 Intangibles. In short, traditional financial statements do not reveal what drives patent value due to the requirements of IAS 38 accounting standard for intangibles. This approach situates the problem and the solution within the domain of traditional financial reporting, and specifically, as a task for the accounting and valuing professions. However, we have seen in Chapters 4 and 5 that reform of IAS 38 Intangibles is unlikely to take place in the short-to-medium term due to the need for a regulated patent market to provide accountants with historical transaction financial data.

7.1.2 Supplemental reporting outside of the existing accounting framework via the ICS or other reporting formats

The second approach holds that fundamentally changing the IAS 38 accounting standard is not feasible or desirable. It is undesirable because the existing system of accounting and financial reporting functions with relative certainty internationally. It provides a certain group of users with adequate information. As a result, this view holds that an entirely new form of corporate reporting is needed, designed specifically for the needs of new/other users and should be separate from traditional accounts.⁶²⁸ As discussed in Chapter 5, new forms of reporting are emerging such as the ICS, a separate management report, which covers a broader range of intangibles and IC than patent information and strategy. In relation

⁶²⁸ Supra Frederick [625] p21

to patent-backed lending, since 2010, five Hong Kong banks⁶²⁹ have offered more favourable financial and/or service privileges to successful business loan applicants who have voluntarily prepared their own ICS.⁶³⁰ The Hong Kong IP Department (HKIPD) worked closely with the banks to facilitate this. HKIPD have also produced a helpful Guide to IC Management.⁶³¹

7.1.3 Better disclosure via the existing corporate reporting framework

Alternatively, the third approach recommends that accounting standards for intangible assets should be supplemented through the narrative disclosure of better and more detailed information. This additional information can appear in traditional financial statements as notes to the accounts, or, as recommended in this thesis, in existing corporate annual narrative reporting. Additional qualitative disclosures concerning intangible assets would have to comply with existing corporate reporting regulations thus, the limitations of IAS 38 are overcome within the traditional financial statements and corporate reports. However, the question is: what type of disclosure and where? In 2013, Frey recommended the introduction of a new type of “Growth Report”.⁶³² In same year, the UKIPO’s *Banking on IP?* Report confirmed that the level of awareness of IP by lenders is low and that IP needs to become more visible in public accounts.⁶³³ Although this report did not make any specific recommendation regarding supplementary narrative reports, it recommended that IP and intangibles must be identified during the financing process. How can lenders do this easily and efficiently? In 2014, the *Final Report from the Expert Group on IP Valuation*

⁶²⁹ Bank of China (Hong Kong) Limited, Chon Hing Bank Limited, Citi Commercial Bank, Hang Seng Bank Limited and the Bank of East Asia.

⁶³⁰ ‘Hong Kong Banks sign up to ground-breaking IC initiative’ (April 2010) Intellectual Asset Magazine at <http://www.iam-magazine.com/blog/Detail.aspx?g=3d6fc595-6202-40f0-ba82-6d5ee1b05def>

⁶³¹ See <http://www.ipd.gov.hk/eng/ICM>

⁶³² Frey, C.B. *IP Rights and the Financing of Technology Innovation* (2013) Edward Elgar Publishing Limited, Chapter 5

⁶³³ *Supra Banking on IP* [18] p15

recommended supplementary reporting of non-financial information on IP. The group recommended that companies file a mandatory “management IP report” detailing IP and IP value.⁶³⁴ The author contacted Jackie Maguire, a UK representative of the EC Expert Group via LinkedIn, to elucidate the decision to recommend mandatory over voluntary corporate reporting. She advised that a mandatory vs voluntary corporate reporting obligation was:

“...a subtle point, but companies have a tendency to follow the hard rules when it comes to financial reporting and do little more than is necessary. For instance, there is nothing stopping PLCs from making an IP statement in their annual report now – however very few do! We wanted to see a step change in encouraging companies to think regularly about their intangible assets and the value that they provide for their business.”⁶³⁵

The author of this thesis is not convinced that the point is merely a “subtle one” for important corporate law reasons that shall be more fully explored in the next section. Unfortunately, the Expert Group’s report does not articulate any further consideration of the dilemma between voluntary or mandatory reporting from a company law or corporate governance perspective.

In any event, all three approaches are being advanced. Imperative changes are occurring in the accounting field in the treatment of certain intangibles, namely, the financial valuation of trademarks via the adoption of the new ISO 10668 Monetary Brand Valuation.⁶³⁶

An ISO standard for patent valuation does not yet exist. In summary, while there is a

⁶³⁴ *Supra IP Valuation Report* [20] p45

⁶³⁵ http://www.linkedin.com/groups?gid=2991669&goback=%2Ebzo_*1_*1_*1_*1_*1_*1_intipsa&trk=rr_grp_name

⁶³⁶ International Organization for Standardization released ISO 10668 in 2010 setting out principles to be used when valuing a brand and may be used for the purpose of corporate finance and fundraising. ISO 10668 requires three types of analysis before arriving at a valuation: legal, behavioural and financial.

convergence to a line of thinking that more information on patents, IP and intangibles is generally warranted, there is not yet a consensus as to how and where to report such information and whether reporting should be voluntary or mandatory. This thesis argued in Chapters 5 and 6 that the appropriate method for supplementary patent and strategy information is via the company's annual corporate narrative reporting. As part of their lending policy, more favourable financial and/or service privileges were offered to innovating SMES who voluntarily prepare and file their own Strategic Report for example, then this is a pragmatic win-win situation. Lenders would have access to important non-financial information to help them to identify solid borrowers that in theory, should meet legal corporate reporting standards. The next section advances further legal arguments as to why disclosure of patent information and strategy should remain voluntary in the UK.

7.1.4 Voluntary or mandatory disclosure and directors' liability: a true and fair view

Making IP reporting mandatory is equivalent to requiring accountability. This is a difficult issue, politically as much as technically. The author's view is that it is premature to impose a legal duty on company directors to report on IP and strategy without providing them with more detailed guidance on how to do so appropriately. This is due to the severe legal consequences under the CA 2006 for failure to report "fairly" so as not to mislead.⁶³⁷ The "true and fair" view concept remains pivotal in the corporate reporting of accounting information and central to accounting practice.⁶³⁸ As such, any narrative patent information disclosed as part of a company's annual corporate reporting will need to be verifiable and capable of substantiation to ensure the information disclosed is not false or misleading. This

⁶³⁷Under s414A a person is guilty of a criminal offence and liable for a fine of up to £5000 for failure to comply with the legal requirement to prepare a strategic report or to take all reasonable steps for securing compliance with the requirement. CA 2006 (Strategic Report and Directors' Report) Regulations 2013 No. 1970.

⁶³⁸ Parker, R. H. and Nobes, C. *An International View of True and Fair Accounting (International Accounting)* (1994) Cengage Learning EMEA

is the price companies pay in return for the benefits of separate corporate personality and especially, limited liability.⁶³⁹

Equally, disclosing patent information and strategy, whether voluntarily or mandated within the legal framework of the CA 2006, substantially increases its legitimacy and authority.⁶⁴⁰ This is so because s463 CA 2006 sets out a strong statement of the liability of company directors who make false and misleading statements in their corporate reports. A director is liable to compensate the company for any loss it suffers as a result of:

(a) any untrue or misleading statement; or

(b) the omission of anything legislatively required to be included in it.⁶⁴¹

This provision may worry inexperienced directors, however crucially to reassure them, there is a safe harbour.⁶⁴² A director will only be liable under s 463 if he knew that the statement was untrue or misleading, or was reckless as to whether it was untrue or misleading, or knew the omission was a dishonest concealment of material fact: s463(3). The safe harbour provisions were included in the CA 2006 as the government felt that too strict a liability would encourage directors to make heavily qualified statements in their narrative reports which would reduce their usefulness. Therefore directors' liability is limited to the company itself and does not extend to shareholders, investors or other third parties such as lenders. This does not affect any civil penalty or criminal liability, but should reassure company directors as their exposure is limited and in particular, negligence claims cannot be brought against them.

⁶³⁹ Mason, S. French, D. and Ryan C. *Company Law* (2013-2014) Oxford University Press, p108

⁶⁴⁰ If the report was prepared under the small companies regime, that fact must be stated in a prominent position above the directors' signature: s419(2) CA 2006

⁶⁴¹ Section 463(2) CA 2006

⁶⁴² A safe harbour is a legal provision of a statute to reduce or eliminate liability in respect of certain conduct as long as one, in this case the company director, is able to demonstrate good faith.

Thus a combination of factors has hindered company directors (even in large, well-resourced companies) from adequately reporting on their intangible assets, especially patents, in their narrative corporate reports: (1) the hidden value of intangibles in traditional financial statements; (2) coupled with a lack of corporate leadership to identify and manage intangibles internally, (3) together with the knowledge if and how to report.

Corporate reporting standards enhance the quality and reliability of the information presented because directors need to be satisfied that their reports show a “true and fair” view. Thus bearing in mind consequences of non-compliance with s463 CA2006, an innovating SME company director must make an informed decision as to whether or not to voluntarily disclose patent information and strategy. Directors will have to carefully consider the benefits of disclosure, balanced against the risks, costs and administrative burden of doing so. For these reasons, the author holds the view that IP, or specifically patent information and strategy disclosure, should be voluntary – to be decided on a case-by-case basis by directors who are in a position to evaluate the company’s specific circumstances, its size, complexity, the nature of the risks and challenges it faces, coupled with the human and financial resources available for making disclosure that meets the legal standard required by the CA 2006.

After systematically considering and comparing the benefits and costs of preparing patent disclosure, the director should consider whether doing so would promote the success of the company under s172 CA 2006. If the answer to this question is in the affirmative, the director(s) may determine to optionally file a Strategic Report (from which they are otherwise exempt). In other words, the need to obtain finance may justify the voluntary disclosure. Moreover, if the company’s directors elect to disclose, the benefits to the innovating SME firm are twofold:

- (1) disclosure will improve corporate governance with respect to the transparency of the directors' stewardship of valuable patent assets; and
- (2) disclosure raises awareness of the availability of those assets as potential security in debt finance transactions as well as to potential equity investors and others who may become interested in the innovating SME's business.

In Chapter 3 we saw that lenders typically require copies of a corporate borrower's annual returns when appraising commercial loan applications. The availability patent information and strategy, designed to meet the "true and fair" standard, would be helpful for commercial lenders who evaluate the innovating SME as a potential borrower using both quantitative (traditional accounting statements) and qualitative (narrative corporate reports) measures, assisting them to triangulate intangibles financial data through cross verification with corporate narrative disclosure

To educate and promote voluntary disclosure should be the first "step change" in encouraging companies to think regularly about their patent assets and the value they provide to the business. The first tier of the original model is introduced below.

7.2 A new model to voluntarily communicate patent information and strategy

The original *Essential, Desirable & Optional Patent Information and Strategy* corporate narrative model has been devised as a new bespoke model to facilitate disclosure by innovating SMEs. It builds on the narrative content and style of the Danish and German ICS method and draws on the GSK patent information disclosure, and other relevant literature, as a foundation adopting "business triage style" approach to provide innovating SMEs with specific guidance as to the type of patent information they may wish to

voluntarily report in the Strategic Report of the company's annual return. To begin, at the early stage of the innovating SME patent innovation lifecycle, a firm is trying to achieve several things, including to:

- ensure that R&D staff have “freedom to operate”⁶⁴³
- generate quality patents for their portfolio;
- ensure that their core business is adequately protected; and
- initiate managerial processes to facilitate patent generation, maintenance monitoring competition and enforcing patents.

Non-financial qualitative patent information value indicators address the relevance of patents to the SME's business largely by determining the overall context and strategy of the patent portfolio. These factors, or “value indicators”, may influence the value of the patent(s) both positively and negatively. Similarly, by way of analogy, consider the example of a retail shop on any UK high street. Factors such as location, frontage, size and retail traffic etc. affect the financial value of a building used as a retail shop. But what of the threat of online shopping? How does this impact on the valuation of the shop? It may not – it probably affects the value of the business carried out in the shop, but the effect of the online shopping may have little effect on the freehold value.

In the same way, the combination of patent-related qualitative factors determines the value of the patent portfolio and needs to be undertaken before contemplating mathematical or financial valuation, which is why the Strategic Report needs to highlight and evaluate the patent assets. Patent protection will provide a business with multiple qualitative patent value

⁶⁴³ Reilly, R.F. ‘Attributes That Influence IP Value’ (Spring 2015) *Forensic Analysis Insights*, p3

indicators that directly and indirectly relate to cash flow, information directly relevant to lenders, as illustrated in Figure 33 below.

Figure 33 **Patent information value indicators and cash flow**

DIRECTLY related to cash flow	INDIRECTLY related to cash flow
Earn licence revenue	Protect new and improved features of products and services
Earn sale revenue on legal transfer of the patent	Exclusivity in the relevant market
	Freedom to operate in the relevant market
	Ability to block product(s) of competitors
	Bargaining tool in cross-licensing deals or strengthen negotiation position
	Provide a defence in the event of legal patent infringement proceedings
	Prevent legal patent infringement proceedings
	Prevent copying of the product
	Enhance the firms' reputation in the field

Source: Sykes, J and King, K. *Valuation and Exploitation of Intellectual Property and Intangible Assets* (2002)

Narrative qualitative patent information aims to capture more of the value that indirectly contributes to cash flow, as illustrated in the right-hand column above. The starting point is the relevant patent specifications.⁶⁴⁴ Internal management should evaluate the portfolio to categorise, rank and compare the individual patents or vis-à-vis competitors' portfolios, assessing the risks and opportunities created by the portfolio to formulate and

⁶⁴⁴ This is a written description of the invention with drawings and "claims". The "abstract" summarises the patent specification. Most successful patent applications have detailed descriptions in the specification that are several pages long, describe different versions of the invention and refer to a set of drawings showing these different versions. The exact style and content varies according to the subject matter. For instance, complicated machinery, electronic equipment and chemical processes need many more pages of description and drawings than a straightforward item with few parts. See the UK IPO's *Patent Applications Guide* at: <http://www.ipo.gov.uk/p-apply.pdf>

document strategy to maximise the future value creation. This is commonly known in the management discipline as a SWOT analysis.⁶⁴⁵

7.2.1 Formulating and documenting patent information and strategy

Making a corporate disclosure, regardless of the format, forces a company to formulate and document its patent information. This is an important step for an innovating SME as the process harnesses the “power of focus” that can lead to critical management decisions in the short, medium and long-term. For example, documenting patent strategy assists firms to focus on filing patents in the most important areas, or drop or license innovative projects in more marginal areas so that the quality of work in its core area of business increases.

From the lender’s point of view, the first step in the qualitative appraisal for security (collateral) purposes is to identify, define and describe the patent portfolio. This is akin to carrying out “patent due diligence”, a process that primarily assesses three essential attributes: (1) the legal monopoly rights exist; the patent is properly registered and is still in force and; the remaining life of the patent; (2) that good legal title (ownership) of the patent can be established; and (3) the patent rights can be enforced to prevent third parties from using the invention without permission (thus generating revenues) in order to sustain cash flows derived from using or licensing the patent. These attributes relate directly to the financial potential the patent(s) for the innovating SME. However, qualitative patent appraisal by a lender for security purposes takes the assessment beyond standard legal due diligence by analysing additional information inputs. This is necessary because the lender (a

⁶⁴⁵ Humphrey, A. ‘SWOT Analysis for Management Consulting’ (December 2005) *SRI Alumni Newsletter*

future creditor) essentially wants to know the future sale value of the patent(s) should a default occur. Qualitative patent appraisal assists with the latter objective.⁶⁴⁶

7.2.2 Devising the *Three-Tier* model

A model is a simplification of the chosen part of reality that helps us to master a large and complex system, which cannot be easily understood in its entirety. A model is intended to be easier to use for certain purposes than the complete system observed. One of the main issues considered before devising the original *Three Tier* patent disclosure model was how it would fit into the existing legal corporate reporting framework, taking into account the guidance and consensus with respect to corporate governance and reporting contained in the UK *Corporate Governance Code* published by the FRC to facilitate effective, entrepreneurial and prudent management that can deliver the long-term success of a company.⁶⁴⁷ The *Code* is not a rigid set of rules rather it consists of principles of good disclosure as follows:

- Leadership (Section A);
- Effectiveness (Section B);
- Accountability (Section C);
- Remunerations (Section D); and
- Relations with shareholders (Section E).

⁶⁴⁶ In insolvency situations, ownership of the patent portfolio may pass to the lender under the terms of the loan agreement. A company has a separate legal entity from those who run it (directors), those who work for it (employees) and those who own it (shareholders). The lender should bear in mind these potential buyers for the patent portfolio (in addition to competitors and other synergistic firms) when appraising the SME's loan application. Directors, key employees and shareholders may have substantial personal assets enabling them to acquire the patent portfolio if the event the innovating SME defaults on the loan, considerably reducing the risk of making a patent-backed loan.

⁶⁴⁷ September (2012) and applies to the reporting periods beginning on 1 October 2012 at <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-September-2012.pdf>, p1.

The standards of good practice with respect to corporate narrative disclosure apply to listed companies⁶⁴⁸ and are based on the underlying principles of good corporate governance: accountability, transparency, probity and focus on the sustainable success of an entity over the longer term.⁶⁴⁹ For the sake of simplicity and to reduce the administrative burden on innovating SMEs, the proposed model is envisaged to operate within the existing company law reporting regime with the principles espoused in sections A – C of the *Code*.⁶⁵⁰

The first tier, *Essential Voluntary Patent Information and Strategy Disclosure Model* (the *Essential* model), is designed to act as a “meta standard” which succinctly identifies the specific patent-related information and strategy indicators to be disclosed in the Strategic Report in a simple ten step process. The *Essential* model draws on the Danish and German ICS question method and intentionally avoids detailed methodological work steps and requirements. However, in contrast to the Danish ICS which is based on four types of knowledge resources, namely, employees, customers, process and technologies (see 5.5.1 above) and German ICS Fitness Check comprising 11 questions followed by six steps for drafting an ICS (see 5.6 above), the *Essential* model is streamlined and tailored to facilitate patent information and strategy disclosure. Neither the Danish nor the German ICS provide bespoke IP asset disclosure guidance. The *Essential* and the comprehensive *Essential, Desirable & Optional* business triage style models address this gap.

The *Essential* model is conceptualised for use by any innovating SME regardless of industry sector and promotes uniformity and comparability. It makes use of the existing UK company law reporting principles espoused in sections A – C of the *Corporate Governance Code* relating to leadership, effectiveness and accountability and the views of the Financial Reporting Council (see 6.1 above and Figure 35 below). In Chapter 6, we found that GSK did not make a stand-alone patent information and strategy disclosure in its 2012 Annual

⁶⁴⁸ Disclosure and Transparency Rules promulgated by FSA pursuant to the FSMA 2000, p2

⁶⁴⁹ Ibid, p1

⁶⁵⁰ Supra [646]

Report, rather narrative disclosures were embedded throughout the entire 252 page document and one had to piece together the “patent value story” (see 6.2). In contrast, both the *Essential* and the *Essential, Desirable & Optional* models contemplate a stand-alone patent information and strategy section.

The *Essential* model acts as a starting point to initiate discussion on the formulation and documentation of voluntary patent information disclosure to raise awareness of the company’s hidden intangible patent assets. This model addresses the lack of patent and other information concerning intangibles arising as a result of the shortcomings of traditional financial accounting statements prepared in accordance with IAS 38 Intangibles. It does so by providing a set of qualitative non-financial patent information indicators to make visible the invisible and concurrently assist directors of innovating SMEs comply with their duty under s172 CA 2006 in the spirit of the *Code*. The qualitative patent indicators are informed by the GSK case study, other reports and literature and the narrative format is inspired by the ICS concept discussed in Chapter 5.

7.2.3 Principle qualitative patent indicators for disclosure

A useful and reliable patent information disclosure needs to be firmly anchored in fundamental qualitative non-financial indicators, accepted and endorsed by the relevant stakeholders. The first issue to be addressed is to signpost the existence of valuable patents and patent applications and their central role within the SME’s business strategy: “the patent value story”. This is not the same as carrying out a patent due diligence exercise (however the disclosure will assist with patent due diligence when the need arises). Innovating SMEs need to become effective at translating their research and inventions into profits. Lenders have no legal authority to tell an innovating SME borrower what to do to commercialise its patented innovations. An equity financier will have more say depending on their percentage

of equity and whether it holds a managerial role in the business. Lenders, however, can only observe and evaluate the choices and outcomes made by the innovating SME.

7.2.4 The *Essential* Disclosure Model

A Strategic Report, tailored to meet a UK innovating SME's business objectives, should provide the information necessary for lenders to assess an innovating SME's:

- (a) development, performance and position;
- (b) future prospects;
- (c) strategy for achieving its objectives;
- (d) business model; and
- (e) governance.

The following qualitative non-financial indicators are regarded by the author as essential for disclosure, on the basis they are material to providing a “true and fair” view of the business. These are the recommended minimum level of disclosure for companies with small patent portfolios if they are to provide relevant, useful and reliable information to lenders, investors and stakeholders.

Figure 34 depicts the first tier of the disclosure model. The *Essential* model is not used to give a detailed description of all possible real or theoretically real pieces of patent information and strategy, instead, it illustrates essential types of information.

Figure 34 **ESSENTIAL Disclosure Model**

1. **The Patent Value Story** – the business model as the platform for structuring the ensuing disclosure
2. **The Patent Portfolio** – development, performance and position, growth opportunities and time frame
3. **The Patent Strategy** - strategy for achieving set objectives
4. **IPR & Patent Management** – governance, stewardship and leadership
5. **Patent licensing and agreements (if any)** – commercial relationships and responsibilities
6. **Cost to commercialise** – finance requirements and objectives
7. **Patent life of key patents** – freedom to operate and duration of monopoly advantage
8. **Principal risks and uncertainties associated with key patents** –financier and investor information
9. **Financial status of the patent asset** – currently or previously used as security for debt
10. **Annual comparison of key patent asset performance indicators** – track performance over time

One should not overlook the importance of *simplicity* in terms of the application of the model. The model attempts to elaborate clearly and unambiguously the minimum essential patent information indicators to be voluntarily disclosed. The information can be presented in a relatively short form, a two-to-three page narrative report in a streamlined, succinct narrative style. Those who rely on the disclosure need to have confidence that information about the patent assets disclosed is “true and fair” as well as the consequences of any risks involved. The disclosure should be made in a consistent and uniform format, contributing to certainty and objectivity. Nonetheless, there will be wide variation in how companies choose to disclose certain patent information and strategy indicators pertaining to their business. The *Essential* model headings provide a useful framework for the disclosure and permits a free-form approach to the narrative style to enhance flexibility. The FRC

report entitled, *Louder than Words*, provides general principles with respect to effective communication in corporate narrative reporting.⁶⁵¹ These are reproduced in Figure 35 below.

Figure 35 Principles for effective communication in narrative corporate reporting

1	Focused	Highlight important messages, transactions and accounting policies and avoid distracting readers with immaterial clutter.
2	Open & Honest	Provide a balanced explanation of the results – the good news and the bad.
3	Clear & Understandable	Use plain language, only well-defined technical terms, consistent terminology and an easy-to-follow structure.
4	Interesting & Engaging	Get the point across with a report that holds the readers' attention.

Source: *Louder than Words* Appendix D

At the election of the innovating SME, the *Essential* model can be further elaborated upon to provide more detailed and comprehensive patent information and strategy disclosure as the company grows and acquires more resources. Figure 36 sets out the author's original three-tier *Essential, Desirable & Optional Patent Information and Strategy Disclosure Model*. This comprehensive model includes additional qualitative patent indicators that flow directly from the *Essential* indicators.

⁶⁵¹ *Louder than Words: Principles and actions for making corporate reports less complex and more relevant* (June 2009) FRC

Figure 36 Essential, Desirable & Optional Patent Information and Strategy

THREE TIER Disclosure Model

NARRATIVE DISCLOSURE	Essential Tier 1 	Desirable Tier 2 (consider on a cost - benefit basis) 	Optional Tier 3 (if low in cost to collate and produce) 
<p>1. The “Patent Value Story”</p> <p>-the business model</p>	<p>Describe the most value-creating patents in the reporting year and how those patents have created such a value for the business.</p> <p>One paragraph setting out business model.</p>	<p>Contextualise how patent assets impact business strategy and highlight the critical value of patent monopolies to the business as a whole.</p> <p>Technology complexities (especially ‘displacement’ technology)</p> <p>Technology Readiness Level</p> <p>Activities performed by the entity to maintain the value capacity.</p> <p>Sustainability of the business model and patent value.</p> <p>Internally generated patent assets</p> <p>Acquired patent assets</p> <p>Sale of patents</p>	<p>Independent valuation or European Patent Office IPScore</p> <p>Internally estimated value of the patents (e.g. GSK Internal Rate of Return methodology)</p> <p>Depth of its patent portfolio (number of patents, patents per jurisdiction), patent families, the strength of particular patent pools.</p>
<p>2. The Patent Portfolio</p> <p>-development, performance and position</p> <p>-growth opportunities</p>	<p>Link patents granted or pending to key products</p> <p>Confirm ‘freedom to operate’ in key countries or regions. Note any material blocking patents.</p> <p>Whether the patent assets are in the R&D process or in the product development cycle.</p> <p>Product characteristics</p> <p>Future economic benefits to be derived from the patent assets and estimated timeframe.</p> <p>Future outlook</p>	<p>Patent pools</p>	<p>Patent citations</p>
<p>3. Patent Strategy</p> <p>-strategy for achieving its objectives</p>	<p>Set out objectives for achieving invention commercialisation.</p>	<p>Information about potential uses of the patent assets.</p> <p>Information about the markets in which the patent assets might be used.</p> <p>Investment in R&D</p>	<p>Further development, R&D pipeline</p> <p>Abandoned patents</p> <p>Abandoned projects</p> <p>Research and innovation management strategy – structure for optimally progressing research and debt or equity finance raised.</p> <p>Patent renewal management and strategy</p>

4. IPR & Patent Management -governance	Patent management policy to confirm corporate governance, stewardship and leadership of Patent Assets Corporate group structure –Is there a subsidiary company that owns the patent assets to isolate risk?	Managerial responsibility for co-ordinating and managing the firm's patent strategy Patent or IP related qualifications of Board of Directors (executive and non-executive) Chief IP Officer (CIPO) or IP Management Team Professional advisors – patent attorneys, legal, accounting etc.	Detailed patent portfolio management strategy Education and training Patent searching Staff briefings (eg obligations owed to employer in respect of IP) Staff newsletters Profile key inventors/ researchers Invention disclosure policy Employee incentives and reward schemes Awards and prizes to demonstrate peer recognition Staff publications Business premises located within a technology park or the like
5. Patent licensing and agreements -commercial relationships and responsibilities	Principal patent licence agreements (licence-in or licence-out) Exclusivity Product distribution agreements Patent pool licences	Sales information relating to patented products (actual and predicted) Collaboration agreements (eg with a university or technology institute)	Market size (existing and expected) Market share (existing and expected) Trademark and other marketing rights Know how
6. Cost to commercialise -finance requirements and objectives	Costs incurred to develop the patent assets.	Estimated R&D costs, and development phases. Costs envisaged to complete commercialisation of the patented invention. Financial resources available to apply for an renew patents.	Patent Box or other tax incentives or tax relief
7. Patent life of key patents	Expiration and duration of key legal patent monopolies		Discontinued patents Discontinued R&D projects
8. Principal risks and uncertainties associated with key patents -investor and financier information	Securing and protecting patent rights and confidential information Loss of patent monopoly rights either due to expiry or successful challenges to the validity of granted patents, patent revocation, patent lapse due to non-payment of renewal fee. Legal proceedings: patent validity; patent enforcement; patent infringement litigation; breach of confidence; inventor's remuneration rights (actual and potential) Competitors and competitive	Risk management processes Consequences of failure to secure freedom to operate. 'Mitigating activities' the company takes to address the risks and uncertainties. Standard of patent protection and enforcement in relevant international jurisdictions outside the UK and EU. General contextual information about the industry Monitoring the competition for patent infringement	

	landscape (products, competition and patents), availability of product substitutes.	Monitoring competitor's patents and patent applications	
9. Financial status of the patent asset	Is or has the patent asset been used as security against debt?		
10. Annual comparison of key patent asset performance indicators	Systematically track and report the progress and growth of the patent portfolio throughout the business lifecycle Milestone achieved	Performance and value-creation metrics	

The three-tier *Essential, Desirable & Optional* model provides a straightforward yet flexible approach for a company to make additional voluntary patent information and strategy disclosure. Beyond the *Essential* patent indicators, innovating SME company directors should consider whether to report the additional *Desirable* and *Optional* information on a cost-benefit or “low cost to collate and produce” basis. This is a crucial decision for financially-challenged innovating SMEs. Thus the model can accommodate the “growth” of the company enabling it to upgrade the patent information and strategy disclosed as it progresses through the business lifecycle without losing uniformity, reliability or comparability over time. The model does not adopt the language of accountants and could be further enhanced through the use of visuals or graphics to complement the narrative.

The majority of the patent indicators in the model are self-explanatory and have already been discussed in Chapter 6 the GSK case study, or with respect to TRLs (section 2.6.5). However, those requiring further elaboration are discussed below.

7.2.5 Patent indicators used in the models

7.2.5.1 The EPO's IPScore2.2 Patent Valuation Software

Item 1 Patent Value Story Option column refers to an indicator described as *IPScore*.⁶⁵² The EPO's *IPScore* patent valuation software is neither well-known nor widely used in the UK at present. It is a useful online publicly available patent value assessment tool that can guide users to carry out their own free patent or patent portfolio valuation. The EPO acquired, adopted and distributed the *IPScore* software to the national patent offices in its member states.⁶⁵³ The software enables users to carry out a basic qualitative patent evaluation for internal company management and provides a qualitative valuation of a single patent or development project and has a built-in financial model which, by producing a financial forecast, presents an order of magnitude for the value of the patented technology when put to use in the company. *IPScore* creates a financial model that is able to provide a forecast of the patented technology's foreseeable contribution to liquidity over a 10-year period which is relevant to a lender's evaluation of future cash flowing through the business and growth. The calculation period is governed by the pre-determined life of the patented technology. The net present value is a discounted foreseeable liquidity flow.⁶⁵⁴ Thus although *IPScore* does not evaluate the patent as a legal document, legal protection is the foundation of value which is why disclosure of the *IPScore* is optional supplementing traditional financial statements. It is comparable to GSK's disclosure of its "Internal Rate of Return" methodology discussed in Chapter 6. The *IPScore* report is only as accurate as the information inputs and a lender could insist any such report be carried out by an independent valuer. However, *IPScore* could be tremendously useful for innovating SMEs as it is a free online resource hosted by the EPO.

⁶⁵² IPScore@2.2 Manual (2009), p9

⁶⁵³ The author conducted a search of the UK IPO website at www.ipso.gov.uk and did not find any link to the IPScore webpage.

⁶⁵⁴ For a detailed explanation of the assumptions in the financial calculations, see *IPScore 2.2.Manual* (2009) Chapter 6.

7.2.5.2 Patent Citations

Item 2 Patent Portfolio Optional column sets out patent citations as an indicator. There is evidence to suggest that there is a strong correlation between patent value and patent citations observable in patent information documents.⁶⁵⁵ For example, the number of references to prior patents generated during the patent registrar's search and examination process, and the number of citations a patent has received indicate its importance scientifically and therefore its relative value. Further, certain patents will have many forward "non-self" citations. A forward citation is a reference to the patent to be evaluated in a later document. Such citations are objective evidence that the patent has high value and is a seminal patent that protects major technical innovations within the particular field. The number of citations can be empirically calculated and investigated, which is helpful and reliable as an information input. The observable result is a network of links called a "patent citations network" which is a useful qualitative evaluation tool.⁶⁵⁶ In summary, the number of times a patent is cited tends to convey its scientific importance and therefore its value. Notwithstanding a simple citation count, it is important to consider how and why citations arise and the information they suggest. Using a patent citation count as indicator of value is only as useful as the level of expertise of those who understand its significance. This may be difficult for a lender to assess without the assistance of an experienced patent attorney.

7.2.5.3 Freedom to operate: the impact of neighbouring patent rights

Patent value is heavily influenced by the property rights that surround the patent monopoly. Throughout this thesis, to keep the concepts as simple as possible, the author has tended to focus on small patent portfolios, given our focus on innovating SMEs at an early

⁶⁵⁵Hall, B. H., Jaffe, A. and Trajtenberg, M. 'Market value and patent citations' JEL Classification: O31, O38 UC Berkeley at http://eml.berkeley.edu/~bhall/papers/HallJaffeTrajtenberg_RJEjan04.pdf, p1.

⁶⁵⁶ Hand, J. and Lev, B. *Intangible Assets: Values, Measures, and Risks* (2003) Oxford University Press, pp208-213; Michel, J. and Bettels B. "Patent citation analysis" (2001) 51 (1) *Scientometrics* pp185-201

developmental stage. However, a single patent operating in isolation is rare, except for start-ups and micro-firms. In patent portfolios there may be blocking patents held by third parties that could significantly detract from the value of a company's patent rights. A blocking patent is one that relates to a particular area of technology which prevents another patent from being used (without a licence from the first) because that other patent relies on technology covered by the first.⁶⁵⁷ Therefore owning a patent does not automatically provide the owner with a "freedom to operate". Another patent may block the desired use. Where there are many separately owned blocking patents covering a particular product or process, a "patent thicket"⁶⁵⁸ is said to exist (discussed in Chapter 2). It is recommended that the company (via a patent attorney) undertake a patent search to confirm whether blocking patents exist and make any appropriate disclosure on their impact. This may be required to provide a "true and fair" view. Dealing with any blocking patent incurs costs, either to license it or to work around it and such costs will need to be deducted from the future economic benefits that are projected from the blocked patent.

7.2.5.4 Patent pools and synergistic patents

A patent pool is a consortium of two or more companies that agree to cross-license patents relating to a particular technology.⁶⁵⁹ In other words, companies join together to create a resource for their collective benefit. Thus, the creation of a patent pool can save the innovating SME time and financial resources, and in the case of blocking patents, it may be the only reasonable way to commercialise the invention. Within a portfolio there could also be synergistic patents that could enhance the value of the company's patent rights. The

⁶⁵⁷ Guellec, D., Martinez, C. and Zuniga, P. 'Blocking Patents: What They Are and What They Do' (5 June 2008) Preliminary Paper

⁶⁵⁸ *Patent Thickets – An Overview* (25 November 2011) UK Intellectual Property Office Informatics Team

⁶⁵⁹ *Patent Pools and Antitrust – A Comparative Analysis* (March 0214) Prepared by the WIPO Secretariat a p3

mirror image of a blocking patent is a synergistic patent portfolio comprising a group of related patent rights.⁶⁶⁰ These may be worth more in the aggregate when held in a single portfolio (or controlled in a single patent pool) than if held separately by different owners. This strategy may also have the effect of overcoming blocking patent problems and lead to an increase in value for each of the patents. A patent forming part of a synergistic portfolio may have a higher value than if it is held in isolation. In such a case, it will be important to consider the strength of the patent family.⁶⁶¹

7.2.5.5 Licences – revenue that improves cash flow (relevant to lenders)

A patent can be licensed for use by several licensees simultaneously without decreasing its value. This stands in sharp contrast to intangibles such as goodwill. As such, there is a potential multiplying effect on future potential income streams which innovating SMEs need to highlight and information that potential lenders need to take on board.

7.2.5.6 Financial resources to apply for and renew patents

The total cost of applying for and maintaining a UK patent over its lifetime, not including any enforcement of the patent rights, is made up of professional fees, official fees payable to the UK Patent Office and fees payable for professionally prepared patent drawings. As discussed in Chapter 2, the lifetime cost of a typical patent over its complete 20 year monopoly is of the order of £10,000-£20,000 GBP, (plus value added tax for UK companies and individuals).⁶⁶² This cost range needs to be multiplied by the number of UK

⁶⁶⁰ Murphy, W., Orcutt, J. and Remus, P. *Patent Valuation Improving Decision Making through Analysis* (2012) Wiley, p103

⁶⁶¹ A patent family is a set of either patent applications or publications taken in multiple countries to protect a single invention by a common inventor(s) and then patent in more than one country. For example, an application is made in the UK and then extended to other offices.

⁶⁶² Franks & Co. '36% Increase in Official UKIPO Patent Fees' (27 May 2010) at <http://www.franksco.com/news/2010/5/36-increase-in-official-ukipo-patent-fees>

patents held by the company as well as similar figures for applying and maintaining patents in other countries which may be higher due to translation costs.

7.2.5.7 Monitoring competition and SMEs

Innovating SMEs generally do not have significant financial resources to monitor competition or to detect potential patent infringement.⁶⁶³ The concept of policing one's property is well-known in trademark law and trademark owners must patrol the marketplace for infringers or risk the dilution or loss of their trade marks, especially if the mark becomes generic.⁶⁶⁴ The duty of patent owners to police their patents is less clear-cut. Innovating SME directors have stewardship of the patent assets and in the author's view, as a matter of good practice, there should be management procedures in place to patrol the marketplace for patent infringement appropriate to the company's circumstances. If significant competition exists then this is "material" information that should be disclosed in order to provide a "true and fair" view of the business. The innovating SME then needs to create a strategy to deal with the competition or to the avert infringement in order to preserve its place in the market.

The UKIPO provides training⁶⁶⁵ in patent searching and detecting infringement using publicly available patent databases and online resources, which could be accessed by innovating SMEs to police potential infringement. Staff could be trained to be alert to infringing products and have policies in place for dealing with infringement or to carry out the watching briefs internally. This function could also be outsourced to a firm with "watching brief" on the key patent journals published by patent granting offices.

⁶⁶³ Rabinowitz, A. 'Keep Your Eye on Your Ball: Patent Holders' Evolving Duty to Patrol the Marketplace for Infringement' (Spring 2007) Vol.5 Art. 1 Northwestern Journal of Technology and IP.

⁶⁶⁴ Ibid, p192

⁶⁶⁵ <http://www.ipso.gov.uk/ipenforce/ipenforce-resources.htm>

7.2.5.8 IP management

In many innovating SMEs, responsibility and accountability to shareholders for IP and patent matters is vague, often falling on the shoulders of the R&D director, chief technology executive, the company secretary or in-house lawyer if there is one. In addition, corporate IP professionals are being asked to participate in internal IP management processes. However, in the evolving corporate environment there is a need for the Board of Directors to show leadership with respect to IP and patent management. Increasingly, IP-rich large companies appoint a Chief IP Officer, the “CIPO”.⁶⁶⁶ Innovating SMEs should report who within the organisation is responsible and accountable for material decisions made about IP and patent assets. If the board of directors is advised by external IP professionals to assist with such decisions, this is important information to disclose as it demonstrates prudent controls are in place to manage corporate patent assets and that the directors have effectively discharged their duties.

Further, the innovating SME may optionally disclose key innovation staff and inventors who have responsibility for driving the technical aspects of the innovation and patent strategy. Staff with contributions to successful inventions, notable qualifications or other esteem factors such as academic or professional publications will enhance the perception that the innovating SME has the ability to achieve its innovation objectives. New highly qualified staff may be attracted to work with the innovating SME. IP management and leadership is important information for lenders who need reassurance that the patent assets over which they may take security are being looked after.

⁶⁶⁶ Harrison, S. and Sullivan, P. H. *Einstein in the Boardroom* (2006) Wiley, Chapter 2.

7.2.5.9 Incentives and/or reward schemes

In the model, it is optional to report whether incentives and/or reward schemes are offered to key researchers and inventors to align their interest with the company's commercial goals. Research shows that monetary rewards are by far the most effective way to motivate employees who choose these by more than three to one over non-monetary recognitions.⁶⁶⁷

7.2.5.10 Awards and prizes

The significance and impact on the innovating SME of winning industry awards and prizes should not be underestimated. A company begins with a commercial purpose. But not all that strive succeed. An award or prize recognises excellence in the field and may carry a monetary award or other benefits and provides public and peer recognition which the company can use to distinguish itself and translate into support, financial and otherwise. The more prestigious the award, the more positive reputational impact it has on the innovating SME's ability to successfully achieve its innovation and commercial objectives.

7.2.6 Good practice in corporate reporting

The assumption that a "true and fair" Strategic Report implies full comprehensive disclosure is unrealistic. The real purpose of narrative strategic report on patent information and strategy is to ensure fairness across the spectrum of information recipients. The Strategic Report should disclose real-time insight on non-financial performance measures that could potentially inform decision-making by users of the information. As a matter of good corporate governance, the company should hold documentary evidence to prove its patent information and strategy disclosures (whether direct or implied) that are capable of objective

⁶⁶⁷ 'Inventor Reward and Recognition Programs Benchmark' (2011) *ipPerformance Group*, Napierville, Illinois

substantiation. It is only if this standard is met that lenders and other external stakeholders are likely to have confidence in the narrative disclosures. In the absence of adequate substantiation the courts may regard the disclosures as misleading.

Boilerplate and generic statements like “our goal is deliver value from our patent portfolio to our shareholders” should be avoided unless they are an introduction to company-specific content setting out how this will be achieved. Companies should not be over optimistic or exaggerate the value, accuracy, scientific validity or practical usefulness of the patents and patented products or processes. If a comparison or comparative statement is made, companies must hold evidence that relates to both their own, and competitors’ patents, that are the implicit or explicit subject of the comparison.

By definition, patents are only granted for “new” inventions: s 1(1)(a) PA 1977. The claims section of the patent provides the description of the property rights in the invention that are conveyed by the patent. Section 14 PA 1977 provides that every application shall contain a patent specification containing a description, a claim and an abstract. Section 14(5) requires a high degree of particularity in that the claims shall define the matter for which patent protection is sought, be clear and precise; be supported by the description and relate either to the invention or to a related group of inventions which are linked to form a single inventive concept. The patent specification and the specific claims delimit the scope of the patent monopoly. Any subsequent litigation, whether in relation to patentability, infringement or revocation, will be very closely concerned with what is the true basis of the invention as set out in the claims. According to Lord Russell in *Electric & Musical Industries Ltd v Lissen Ltd*:⁶⁶⁸

⁶⁶⁸ (1939) 56 RPC 23

The function of the claims is to define clearly and with precision the monopoly claimed so that others may know the exact boundaries of the area in which, if they venture therein, they will be trespassers.

Therefore, companies who wish to make “new” and especially “breakthrough” claims are advised to collate sound research data to form a body of evidence to substantiate the strategic impact of the patent claims (e.g. properly controlled experimental studies).

Opinions expressed regarding the future value creation of the patent portfolio or individual patents should be supported with independent evidence of their accuracy. An experienced patent attorney’s opinion as to the quality of a patent claims is a fundamental information input that feeds into the qualitative assessment of patent value. If opinion on the future value creation of the patent assets is divided, the disclosure should not portray the future outlook as generally agreed. The board of directors has a duty to ensure that its patent information and strategy disclosures provide a “true and fair” view. In particular, if such disclosures have not been independently substantiated, the Board will need to determine that any patent information or strategy disclosure it makes is not untrue, unfair or misleading.

In summary, the original *Essential, Desirable & Optional Patent Information and Strategy* model creates a simple framework to collate and present the “Patent Value Story”. The qualitative patent information value indicators used involves data that in many instances is already publicly available or capable of substantiation, but is drafted to construct a narrative. Once the relevant information has been researched it is relatively easy for a lender or investor to instruct an appropriately qualified patent attorney or patent lawyer to classify and evaluate the disclosure. We have seen that a quantitative traditional financial valuation only gives an indication of the estimated monetary value of an innovating SME’s patent portfolio and to date this approach has been insufficient in terms of the very limited number of patent-backed financing decisions made by lenders. There is no logical reason why

lenders should restrict themselves to the financial statements. The new *Essential, Desirable & Optional Patent Information and Strategy* model also facilitates a SWOT analysis of the SME's patents and strategy. For example, the outcome of a lenders' review of the SMEs financial statements, corporate annual report and Strategic Review (based on the model) may or may not be that the innovating SME's:

...patent portfolio protects a technology of strategic importance for an attractive market; it can be enforced efficiently, but significant investment is still needed to progress the development of product X. The company will not be able to generate the projected sales and hence profit, unless full finance is made available to it at the beginning of the projected period.⁶⁶⁹

In another example, the lender may appraise the borrower's position by concluding:

It appears that the Xcel Innovation Company Ltd is an innovating SME in the process of consolidation. It has made substantial investment in its biotechnology patents and renewal fees during the last three years as growth of assets during the period will reveal. These investments are principally supported by a government research grant and the company is now seeking a long-term loan. It might take a few more years to fully reap the benefits of these investments. During this consolidation period, XcelInnovation has projected a moderate sales growth of approximately 7.5% per annum which is conservative but reasonable. The operating structure of XcelInnovation is strong. It has a stable growth-to-profit ratio.

⁶⁶⁹ Bhattacharya, H. pp386-388

7.3 Criticism of narrative patent information and strategy disclosures

Despite the fact that they have been in existence for decades, the usefulness of corporate narrative disclosures generally has been subject to criticism. Malone recognises the potential pitfalls of intangibles narrative reporting:

There are some good reasons for not attempting to measure the intangible assets, the intellectual capital, of companies and other organizations. Such a measurement will be difficult, imprecise, and it will open the Pandora's Box of politicization and hype, fad and fraud.⁶⁷⁰

There is no doubt that a high degree of judgement is necessary in assessing what and how to disclose. This is the aim of the *Essential, Desirable & Optional Patent Information and Strategy* model – to provide guidance for company directors and a basis for users to assess comparability. Malone states further however that an attempt must nevertheless be made to describe intangibles. Countries that have mandatory ICS regimes clearly accord the ICS the same level of official recognition as financial statements. Similarly, in the UK, as the patent information and strategy disclosure will be presented in the Strategic Report, it also has official recognition. Neilson studied the trends and issues in management commentary over the past two decades of attempts to create guidelines and regulation for corporate strategy narratives, concluding that:

A solution to making management commentary matter to the investment community is to emphasise the interconnectedness between parts of the narrative sections according to the logic of the business model. Furthermore, regulation should be

⁶⁷⁰ Malone, S. 'Quantifying the Brave New World' (1999) *Hoover Digest*, 1999 No. 1

concerned with creating guidance on how to structure management commentary and strengthen such narrative statements through relevant performance measures.⁶⁷¹

This is precisely what the *Essential, Desirable, Optional Patent Information & Strategy Model* attempts to do, create a framework to demonstrate the role the patents assets play in future value creation for the business. It is this interconnectedness that is key to providers of capital and debt finance. Therefore, to address criticisms, voluntary disclosure of patent information should have a strategic focus and be communicated clearly, truthfully, fairly and unambiguously in compliance with the legal requirements of the CA 2006. Reporting patent information and strategy should be balanced and objective and enable comparisons over time by building on commonly accepted indicators, which fall outside obligatory disclosure by GAAP, and provide a better understanding of the company's key financial drivers beyond the figure for intangibles as recorded in the traditional financial statements. The new model will assist users to evaluate management performance with respect to patent assets enabling them to differentiate between good, bad and ugly corporate stewardship, a central part of corporate governance. A variety of problems that stem from the lack of transparency about material patent assets may be overcome including accountability, directors' acting in their own interests, selective disclosures and insider dealing.⁶⁷²

An important issue for directors is accountability *versus* confidentiality. Although there may be concerns about disclosure of confidential patent information, one needs to weigh this against the need for improved awareness of lenders and other stakeholders of patents asset value as a core part of the business. Innovating SMEs should be alert to avoid public disclosure of information that may be conveyed in confidence directly to

⁶⁷¹ Neilson, C. 'Dilemmas in the usefulness of business reporting narratives towards investors and other professional decision-makers' Department of Business Studies, Aalborg Universitet, p1

⁶⁷² The latter applies only to publicly listed companies. Section 52 Criminal Justice Act 1993 creates three kinds of insider dealing offences involving the use of inside information and dealing in securities.

the lender. A proper balance can be struck between the public interest of transparency, accountability and the private interest of confidentiality.

In conclusion, we have studied innovating SMEs whose competitive advantage rests largely on their ability to manage their strategic resources, which for our purposes are patent-protected intangible assets, rather than tangible in shape and character. We saw in Chapter 3 that signalling effect of patent value is not being received by UK lenders contemplating making loans to innovating SME firms. The value of an innovating SME's patent portfolio value will change once applications are granted, and will change again, if and when a legal challenge, either offensive or defensive, has been successful. The strength of the *Essential, Desirable and Optional Patent Information and Strategy Disclosure Model* for narrative corporate disclosure is its simplicity and that it provides a concrete solution for the lack of transparent patent information in traditional accounting statements and abbreviated corporate reports. One can argue that if the patent information and strategy is important for the management of the company, then it is also relevant for external stakeholders to piece together sufficient relevant information to put the financial numbers with respect to intangibles in context. The model facilitates access to debt finance by providing an effective method of communicating useful patent information and strategy that meets the "true and fair" standard required by corporate disclosure laws to lenders and provides essential forward-looking information, crucial for lenders to estimate growth prospects. The model directly supports and furthers the implementation of three key recommendations made in the *Banking on IP?* Report and could be included in a UKIPO resource toolkit and supporting services which when integrated will:

- help old and new economy businesses identify and communicate their IP and its relationships to cash flows;
- help companies and lenders understand the business value of IP; and

- improve efficiency in due diligence on IP assets.⁶⁷³

Implementing the model and the necessity for multi-disciplinary expertise is the subject of the next section.

7.4 Implementation

The *Essential, Desirable & Optional Patent Information and Strategy* model initiates a new discourse and its reception depends on political consensus and wide acceptance by the innovating SMEs themselves. Creating confidence in new types of patent information is a question of normalising company disclosure practice, being consistent so as to create user experience in understanding such performance measures.

The success of the model will only be possible if it receives government endorsement and support to encourage and promote its use by providing resources to educate innovating SMEs and commercial lenders. At present, neither the UKIPO, BIS, the FRC nor Companies House work together to provide bespoke advice to innovating SMEs or other patent owning firms about IPR and patent information and strategy corporate narrative disclosure. No official bespoke guidance exists to encourage innovating SMEs, who are otherwise exempt from providing a Strategic Report (formerly the Business Review) in their annual return, of the benefits of doing so.

Taking into account these points, voluntary adoption of the model would need to be recommended by BIS and UKIPO who could interact with the FRC and Companies House in terms of promotion and guidance to innovating SMEs. A multi-agency approach is needed to coordinate the patent law, corporate and business finance advice that is contemplated by the model.

⁶⁷³ Supra *Banking on IP?* [18] p2

In addition, within the private sector there is clearly an important role for both the accounting and patent attorney professions to play. Turning firstly to the accounting profession, innovating SMEs at the early stage of their business lifecycle typically contact an accountant to establish the corporate entity and assist with filing of tax returns with HM Revenue & Customs and file corporate reports with Companies House. Accountants are therefore the first port of call and the UKIPO's IP Finance toolkit will help to raise the level of awareness of accountants of the need to consider IP as corporate assets that should not only be accounted for as intangibles in traditional financial statements, but which warrant additional voluntary narrative corporate disclosure. Similarly, the patent attorney who files the patent application on behalf of the innovating SME should also be in a position to highlight the benefits of voluntary disclosure of patent information and strategy in the innovating SME's annual return to facilitate access to finance. The actual preparation of the disclosure could follow the three-tier business triage style model which may involve the input of the innovating SME's accountants, patent attorneys and legal advisors as determined on a cost-benefit analysis.

In the future, it is predicted that multi-disciplinary accounting practices will need to employ or subcontract to IP or patent specialists to assist with preparation of patent information and strategy disclosures and the independent auditing of these. Sophisticated accounting firms looking to the future will need more than just accounting, tax, consultancy and audit services to service their clients whether innovating SMEs or larger corporate entities. A form of multi-disciplinary legal practice is already possible with the introduction of the *Legal Services Act* (2011) which introduced the Alternative Business Structure (ABS). This enables non-lawyer groups such as accountants to share the management and control and bring together lawyers and other professionals, potentially patent attorneys, to provide

services requiring a multi-disciplinary approach. Similarly, commercial lenders will need to access IP and patent analysts to evaluate the assets of its IP-rich clients.

7.5 Conclusion

The Essential, Desirable and Optional Patent Information & Strategy Disclosure Model provides guidance for a specialised type of narrative report that focuses on meeting the needs of a group of stakeholders that is broader than shareholders and investors, but which contemplates other capital providers such as commercial lenders and banks. The innovating SME will then have a well-considered, coherent basis for ensuring connectivity between the various media and the message it communicates concerning its patent monopoly-based business model. This will help to align the “Patent Value Story” across its company website, social media, brochures and product and services information. A new disclosure structure will initiate a patent value revelation process. The author is optimistic that the new model will be considered by innovating SMEs with consensus among stakeholders in the field because those with good news will begin to disclose, motivating others to join ranks as financiers will penalise silence on patent information and strategy. Early innovating SME adopters who file a narrative corporate report as part of their communication strategy using the model could potentially build impetus and momentum for future mandatory IP management reporting regulation.

Chapter 8 sets out the author’s final recommendations and conclusions.

8 Facilitating patent-backed lending decisions in the UK: Conclusions and recommendations

‘According to Darwin’s Origin of Species, it is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself.’

Leon C. Megginson, ‘Lessons from Europe for American Business’, *Southwestern Social Science Quarterly* (1963) 44(1): 3-13, at p4

Introduction

Around the world several commercial lenders are beginning to look with interest at patents as an asset class for security. The way forward, in the author’s opinion, is to focus on what innovating SMEs want (money), what the commercial lenders want (security) and what corporate regulators want (accountability). This chapter sets out a range of sharply pragmatic recommendations which can be grouped into three themes. Section 8.1 recommends actions innovating SMEs can take to improve their position as borrower in a patent-backed lending transaction. Section 8.2 considers the role of the commercial lenders in developing or upgrading existing strategies and policies to enhance their patent-backed lending business. In section 8.3 the role of the government, as facilitator and policy coordinator, is re-examined and we derive policy recommendations on how to enhance information efficiency and improve the visibility of SME patent assets that will benefit external stakeholders such as lenders who are, and increasingly need to be, involved in the intangible economy. Section 8.4 sets out the author’s final remarks regarding disclosure of patent information and strategy to overcome the effects of IAS38 Intangibles which hides the “patent value story”. This involves company law taking the lead using the Strategic Report format to provide a “true and fair” view of innovating SME patent assets.

8.1 Creating a level playing field for innovating SMEs

The playing field is far from level for innovating SMEs in several respects. For this reason it is increasingly difficult to fund innovation, inspire inventors and protect the vital engine of the knowledge economy.⁶⁷⁴ Innovating SMEs are in a worse position than other SMEs due to:

- (1) large up-front costs required to obtain patents which are at the nucleus of the business strategy to protect innovations against copying by competitors and derive supra normal profits (Chapter 2);
- (2) the unlikelihood of commercial lenders to entertain the use of patent assets which they regard as poor-quality security under Basel III as security (chapter 3);
- (3) the difficulty valuing patents and the gap of several years before a patent application will be granted, thus becoming more valuable as a security (Chapter 3).

What actions can innovating SMEs take to improve their position as a borrower with patent assets? The author makes the following recommendations.

Recommendation 1

UK innovating SMEs must ensure they benefit from the existing UKIPO and BIS freely available resources as set out in Chapter 2 to identify and manage their IP and patents (beyond their financial statements of expenditure). This will enable them to build their narrative qualitative patent disclosure to inform prospective lenders and funders.

⁶⁷⁴ Wild, J. 'Why don't companies with huge compliance departments have anyone looking at patents?' (5 January 2014) Intellectual Asset Magazine

Recommendation 2

Innovating SMEs should designate an Intellectual Property Officer (IPO) to manage the company's IP from the outset to lead ongoing IP management as the company grows. In a one-person company, the director should be aware of this aspect of his/her responsibilities to promote the success of the company under s172 CA 2006 (as seen in Chapter 7). The IPO role feeds into business development, finance and marketing.

Recommendation 3

Innovating SMEs should consider making voluntary narrative disclosure of patent information and strategy in the Strategic Report of the annual return using the “Essential, Desirable & Optional” model presented in Chapter 7. This should be updated annually to demonstrate, reliably and repeatedly, how their patents deliver value beyond the balance sheet which inadequately documents internally generated patents as an expense. By using the regulators' corporate reporting format, SMEs borrowers will avoid having to generate multiple sets of information e.g. management reports, ICS, growth statements.

Recommendation 4

In relation to the debt finance sought, the innovating SME borrower must be prepared to answer the lender's questions: “How much?”, “Why?” and “When?” The voluntary narrative patent information and strategy disclosure will assist to develop sensible commercially-oriented answers to these questions.

These recommendations further develop the first and second recommendations of the *Banking on IP?* Report⁶⁷⁵ and will assist innovating SMEs to convince the finance community that patent value should be taken into consideration in commercial lending decisions. The FRC recommends that all company narrative reports contain more information and focus on the area of IC which includes IP and more specifically, patent information (Chapter 6). Providing the type and quality of information needed by lenders at the outset will reduce the cost of assessing creditworthiness, facilitating the patent-backed loan appraisal process.

8.2 The role of commercial lenders in developing and/or upgrading existing strategies to enhance their patent-backed lending policies

This history of UK banking has been one of large shifts among assets in response to movements in differentials among rates of return and commercial banking (lending and retail deposit taking) ranks in third position behind investment banking and asset management.⁶⁷⁶ More recently, we have seen from Brassell and Kings' research that "recent banking initiatives targeting growth businesses are finding that traditional fixed assets simply no longer exist".⁶⁷⁷ In an age of financial innovation, Asia is setting the pace in IP-backed lending and UK lenders need to consider adjusting their mind-set and behaviour to profit from the changing environment by responding to the challenge of recognising patent assets in their future lending decisions, thus creating (or adapting) patent-backed lending policy to participate in a growing market (Chapter 2).

⁶⁷⁵ Supra *Banking on IP?* [18] pp218-219

⁶⁷⁶ Supra Bhattacharya [408] p5

⁶⁷⁷ Supra *Banking and IP?* [18] p13

Recommendation 5

Commercial lending banks urgently need to develop a contemporary written “Patent-Backed Lending Policy” to provide a blueprint for lending decisions enabling the financial institution to self-regulate and carry out the required dynamic loan monitoring in respect of patent asset security against the background of the patent ecosystem (Chapter 2).

Howard Crosse, former Vice-President of the Federal Reserve Bank of New York, stated that “the very act of formulating a policy and expressing it in words that all agree will sharpen the issues and make the end product more effective”.⁶⁷⁸ Commercial lending institutions should consider drafting patent-backed lending policies to attain the following broad objectives:

- (1) profit maximisation in the short and long term (taking into account the nature of the patented invention commercialisation cycle) based on its strategic plan;
- (2) conducting the patent-backed lending function within a managed risk framework; and
- (3) Basel III capital adequacy requirements.

Such policies need to align with the *Lending Code* (Chapter 4) which is monitored by the independent Lending Standards Board (LSB) to ensure that the standards are expected of banks in connection with the assessment of lending applications are met.

⁶⁷⁸ Crosse, H. D. *Management Policies for Commercial Banks* (1962) Prentice-Hall Inc., Englewood, New Jersey

8.2.1 Profit maximisation

Profit maximisation remains the chief concern of bankers around the world. Lenders will need to analyse how the decision to make patent-backed loans will impact on the profitability of the bank. In modern commercial lending, as in any other enterprise, the strategic planning exercise must begin with a profit objective in view and other policy sub-goals like credit-deposit ratio, portfolio-mix, “access to liquidity”, transaction costs, loan repayment norms, dynamic monitoring etc. will follow.⁶⁷⁹ This is important for the purpose of the bank implementing an appropriate appraisal system of the innovating SMEs patent assets. Central to the development of a healthy patent-backed lending environment is the creditworthiness of both the patent-owning borrower and the lender. Professional development for loan officers in terms of IP education, especially those dealing with innovating SMEs, will be necessary. IP consultants could be engaged to advise on patent-backed lending transactions.

8.2.2 Managing patent-backed debt finance risk

Take calculated risks. That is quite different from being rash.

General George Patton (1885-1945), US Army

Recommendation 6

Commercial lenders need to develop a patent-backed lending policy that takes into account a “patent-risk” profile and meets their own risk tolerance level. This will impact on loan pricing and interest rates, which operationalises the profit target of the bank. A policy stating the minimum Technology Readiness Level the bank requires is recommended.

⁶⁷⁹ Supra Bhattacharya [408] p15

A core function of the lender is gathering information to reduce uncertainty about the borrower's ability to repay the loan applied beginning with an evaluation of the traditional financial statements (Chapters 3 and 4). However, we explained why this analysis is limited with respect to internally generated patent assets, because their value is hidden on the balance sheet (Chapter 4). Yet credit appraisers identify the balance sheet as a crucial document in assessing creditworthiness, first as a tool for seeing if the value of the patents secures the loan, but also to see if the value of the business is growing. It is at this point that patent-backed lending policy should request the new qualitative patent information and strategy disclosure prepared by the innovating SME in the Strategic Report section of its annual return (Chapter 7). This supplementary information will assist lenders to identify the patent assets and secondly, to take appropriate controls over registered patent applications and granted patents in a lending scenario (section 3.9 above) and determine whether the innovating SME business is growing. In the author's view it is crucial that the credit appraiser have both the traditional financial statements and the voluntary narrative patent information and strategy disclosure to judge the financial and operating health of a borrower. The lack adequate quantitative and qualitative information about corporate intellectual property (IP) assets, impeded lenders' ability to assess strategic value of those assets. They seek more relevant, accurate and timely information about corporate IP assets – the type of information currently only known to internal management - to assist them to triangulate intangibles financial data through cross verification with corporate narrative disclosure.

We also noted the ground-breaking ICS initiative introduced in 2010 by five Hong Kong Banks who offer innovating SMEs more favourable financial and/or service privileges if they prepare their own ICS (Chapter 7). UK patent-backed lending policy should adopt a similar approach with respect to the Strategic Report, to provide lenders with important qualitative non-financial patent information and strategy essential for credit appraisal.

Recommendation 7

If lenders require a corporate narrative patent information and strategy report as part of their patent-backed lending policy, SMEs will likely devote the time, effort and resources to producing it and voluntarily filing it at Companies House. This fulfils both the lender's objective, and promotes good corporate governance under the CA 2006.

It is well known the UK has some of the highest corporate governance standards in the world which should reassure lenders. The UK the Strategic Report format must comply with the requirements of the CA 2006, even if made voluntarily, substantially increasing the legitimacy and authority of the information disclosed. An original contribution of this thesis is the creation of the business triage style *Essential, Desirable or Optional* disclosure model for qualitative non-financial patent information, designed to fit within the existing corporate reporting regime.

Recommendation 8

A lender contemplating a patent-backed loan should take a complete view of the "patent value story" of the business. This will enable it to better assess lending risk and provide a sensible level of finance that is not so low as to impede the SME's liquidity.

Recommendation 9

If a positive lending decision is made, the lender should register its security and implement a dynamic monitoring system to obtain periodic business forecasts and details of future outlook in respect of the innovating SME's evolving business, patent strategy and credit needs.

It is expected that commercial lenders will update their credit appraisal methodology to include the qualitative patent information and strategy as an aspect of their forecasting techniques. Actuarial science will lead to the creation of appropriate patent metrics and algorithms to deal with the financial impact of uncertainty and credit risk.

8.2.2 Capital adequacy requirements and Basel III

The capital plan of a commercial lending bank is often regarded as a bridge between its strategic plan and its profit plan. Bank capital supports confidence in banks.⁶⁸⁰ However, in Chapter 3 we saw that the argument that tighter restrictions on bank borrowing would restrict a bank's ability to provide loans to the rest of the economy is not tenable, as ably demonstrated by Admati and Hellwig. Capital regulation does not force banks to reduce their capacity to make loans. Viable banks can increase their reliance on un-borrowed funds without any reduction in lending.

Recommendation 10

Commercial lenders should consider adjusting their reaction to Basel III capital adequacy requirements and increase their risk tolerance for patent-backed lending transactions.

In conclusion, financial institutions are geared to serving the needs of customers for whom the volume of activity justifies the costs of acquiring information. Currently the volume of patent-backed debt finance transactions is low. Although commercial lenders already engage in IP finance to some degree, this is limited to large and public companies with significant patent portfolios and other assets that can be used together as loan security. This lending experience needs to flow downstream to lending officers who deal with

⁶⁸⁰ Bhattacharya, H. p15

innovating SMEs. The patent-backed debt finance transaction will become more efficient with frequency resulting in improvement to the credit appraisal process which will eventually become standardised (commoditised). Therefore, the future success of a patent-backed loan policy lies not in its drafting, but in its implementation.

Is there a case for doing nothing? Should lenders simply be left to their own devices? The difficulty with this argument is that if lenders are already averse to patent-backed lending the situation will simply become even more ingrained. If all banks stepped up their patent-backed lending, that would bolster patent asset values and support investment in innovation and the economy.

To achieve this, commercial lenders need to change the way they think and work. They need to think differently about the viability of patent-backed lending. Better and more efficient techniques of appraising credit applications involving patent assets have been propounded in this thesis, but they must be embraced. If more lenders take the initiative, following frontrunners (e.g. Clydesdale Bank, the London branch of the Silicon Valley Bank, Santander, the Brazilian Development Bank, the Jamaican Export-Import Bank, Credit-Suisse, the five Hong Banks and China Development Bank), this will lead to financial sector reform. These lenders have progressed through “all four stages of acceptance” identified by the British biologist, IBS Haldane:

- (1) this is worthless nonsense;
- (2) this is an interesting, but perverse, point of view;
- (3) this is true, but quite unimportant;
- (4) I always said so.⁶⁸¹

⁶⁸¹ Haldane, IBS, ‘The Truth about Death’ (1963) 58 *Journal of Genetics* 463-4

Haldane was referring to reactions to new ideas in science and not about lending or the law, but his words resonate in today's commercial lending market place. There will be opportunities for innovative commercial lenders. Just as research by the Oxford Internet Institute suggests that those who have the least experience of the Web are the most distrustful of it,⁶⁸² so is there a similar situation with commercial lenders who lack experience dealing with and patents as security. This thesis aims to increase lenders' confidence in patent-backed lending and reduce one of their triad of concerns, namely, uncertainty as to patent value. This is achieved by a legal solution to the transparency problem advocating company law take the lead and suggesting enhanced corporate disclosure of patent information and strategy in the Strategic Report is the way forward and increasingly essential for good corporate governance. Lord Denning said:

If we never do anything which has not been done before, we shall never get anywhere. The law will stand still whilst the rest of the world goes on and that will be bad for both.⁶⁸³

In the medium-term, it is predicted that as lending decisions become more efficient and accurate, the cost to the bank per pound (£) loaned to innovating SMEs will reduce. In the longer term, it is envisaged that the evolutionary path for patent-backed lending strategy comprises three stages: bespoke "one off transactions"; standardisation of process (avoiding duplication of effort or reinventing the wheel) and finally, systematisation of internal knowledge processes.⁶⁸⁴

⁶⁸² Dutton, W. and Helsper, E. *The Internet in Britain* (2007) Oxford Institute, Oxford

⁶⁸³ *Packer v Packer* [1954] at p22

⁶⁸⁴ Susskind OBE, R. *The End of Lawyers? Rethinking the Nature of Legal Services* (2008) Oxford University Press, p9

For the innovating SMEs, the aim is to enhance access to debt finance at an interest rate that is comparable to that offered to other SMEs who are not reliant on patent assets. This will be achieved by clarifying the how the “patent value story” impacts on the SME’s business model leads to future value creation.

In terms of future research, as the use of patent-backed debt finance is disseminated and reaches a wider audience of lenders and financial institutions, it will be of interest to analyse the uptake in the UK by innovating SMEs and lenders as well as other barriers to patent-backed debt finance.

8.3 The Government’s role as facilitator and policy coordinator

The public sector plays an important role in creating the environment for entrepreneurial innovating SMEs to be successful (Chapter 2). The UK government has made substantial progress to improve the patent ecosystem in the past decade but must continue to respond creatively and forcefully to the challenge of patent-backed debt finance within the context of the patent ecosystem. Nevertheless, the future for innovating SMEs could be prosperous or disastrous depending on whether they are able to secure the finance they need to grow and flourish.

We observed that the governments of Singapore, Malaysia and the PRC have been proactive in raising IP awareness to ensure that business and financiers in those jurisdictions understand the future value creating potential of all forms of IP which they support via government-led “IP financing” schemes (Chapter 1). Similarly, we noted the proactive approach taken by Hong Kong’s IP Department in engaging with banks leading to an agreement advantageous to loan applicants who prepare their own ICS (Chapter 4).

Recommendation 11

The government should study the effectiveness and impact of the IP financing initiatives afoot in Singapore, Malaysia and the PRC and consider whether to implement an IP finance scheme in the UK.

Emphasising the banks' own self-interest and how they will have the opportunity to profit from a new customer base by gaining early mover advantage, or fall behind their more innovative peers, is likely to be the most successful strategy.

The research in Chapter 4 determined that company law should take the lead within the patent ecosystem, ahead of traditional accounting principles, to provide a "true and fair" view of the future value creating potential of internally developed patent assets. This is necessary in the absence of the regulated patent market the accountant needs to obtain an arms' length price for patent assets that is acceptable under IAS 38 for intangibles.

Otherwise patent assets will remain invisible and "out of sight" and "out of mind". There are further opportunities for the Government to make a positive impact on the progress of patent-backed debt finance.

Recommendation 12

The government should acknowledge the lack of innovating SME patent information available to lenders, due to accounting practice with respect to intangibles, coupled with the unintended consequence of the "small companies regime".

Recommendation 13

The government should develop a coherent approach at a national level (between UKIPO, BIS, Financial Reporting Council and Companies House) to encourage innovating SMEs to voluntarily disclose patent information and strategy in accordance with the corporate reporting requirements under the CA 2006.

Recommendation 14

The interaction between IP, personal property security law, company law and insolvency will need to be improved to ensure creditor protection if patent-backed debt finance is to flourish in an economically efficient manner. The government should participate in the Secured Transactions Reform Project, ensuring that the UKIPO, BIS and Companies House are represented in the “Security Interests in IP” working group to effectively co-ordinate the Company Register and specialist Patent (and other IP) Register rules.

Recommendation 15

The government should consider adopting the “Essential, Desirable & Optional Model for Patent Information and Strategy Disclosure” developed in this thesis as a guide to enable innovating SMEs to further explain their patent assets how they will contribute value to the company, generate cash flow, income streams and growth.

At a broad policy level, the role of the corporate reporting for innovating companies, big or small, will become more important. Company law and capital market regulators typically set out the minimum level of disclosure of corporate information. However,

research by accounting firm Deloitte in 2009 indicated that the length of corporate annual reports increased by 48% during the period 2005-2009 and that a clear benefit of such enhanced disclosure is improved corporate valuation.⁶⁸⁵ Increased disclosure of the “patent value story” should have a similar outcome: increased patent asset value. It is highly likely that voluntary corporate reporting of patent information and strategy would positively impact those innovating SMEs seeking patent-backed debt finance secured by patent assets because lenders will need the same type of information that traditionally has been made available to equity financiers. The value of the innovating SME’s patent assets would be derived from all available public information enabling banks to agree lending terms in alignment with more accurate risk levels. If the commercial lending community’s understanding of patent assets improves and more positive patent-backed lending decisions are made, the bias against intangible patent assets will slowly reduce as lenders develop risk tolerance for, experience and familiarity correlating patent information with lending transactions and repayment terms.

Recommendation 16

The government should continue to make IP education and advice more accessible to innovating SMEs, but take this further to inform and demonstrate how to make patent information and strategy disclosure via annual corporate reporting, in consultation with the UKIPO, BIS, the FRC, Companies House; with the involvement of the professional bodies for accountants, patent attorneys (CIPA) and lenders (BBA).

At a political level in relation to the banking sector, the UK government should entreat and encourage commercial lending banks to evolve their own strategies for creating or

⁶⁸⁵ Cowley, A. and Swaffield, A. ‘The Strategic Report A practical guide to the new regulations’ (2014) Deloitte

upgrading patent-backed debt finance policies via the co-ordinated efforts of the IP Minister and the Secretary of State for BIS.

8.3.1 The UKIPO

In relation to the UKIPO specifically, the author makes the following recommendations to progress patent-backed debt finance:

- continue to support developments at an international level including WIPO and UNCITRAL (Chapter 1)
- devote more resources to improving patent examining and reducing patent backlogs and to ensure innovating SMEs access advice to public funding opportunities including Horizon 2020: The EU's strategy for Research and Innovation (Chapter 2)
- replicate a UK version of WIPO's *IP Advantage* database to document the innovation finance funding environment and experience of innovating UK SMEs. (Chapter 3)
- commission, together with the FRC, a legal opinion to ascertain whether the application of IAS 38 for Intangibles to internally generated patent assets is "true and fair" or requires revision (Chapter 4).
- support the adaptation of traditional capital markets to facilitate the buying and selling of patents (or new IPR Exchange platforms) to enhance patent asset liquidity and provide arms' length patent transaction data (Chapter 4)
- promote the use of the EPO's *IPScore* patent valuation software accessible via the UKIPO website (Chapter 7)
- support the accreditation of specialist patent-backed debt finance lenders via UKIPO certification courses developed in conjunction with academic and professional

experts.

In addition, the author recommends that future developments to the *IP Finance Toolkit* released in March 2015:

- provide more specific advice and templates to capture the different types of IP e.g. patents, trade marks and copyright;
- include case studies to illustrate real life examples of positive lending decisions (particularly to encourage lender confidence in IP-backed lending);
- highlight the availability of the free interactive online *IP Health Check Tool* which can be used in tandem with the *IP Finance Toolkit* to produce a confidential IP asset report;
- indicate that innovating SMEs may make a voluntary narrative report on their IP assets and IP strategy in the Strategic Report of their annual report to Companies House using the new *Essential, Desirable and Optional* model developed in Chapter 7.

These measures will contribute to creating a level playing field in government IP policy enabling innovating SMEs to exploit their patents assets more easily and effectively, in line with owners of traditional tangible assets.

8.4 Final remarks

The present thesis focusses on a practical commercial problem within a legal context, namely how to improve access to patent-backed debt finance by innovating SMEs. The central question, which directed the course of enquiry, was how to make patent assets more attractive to debt financiers as potential security for lending at the credit appraisal stage of patent-backed lending transaction. To answer this question, a subset of questions was examined and analysed in the subsequent Chapters. A vital question involved examining how to reduce the level of uncertainty perceived by lenders with respect to the value of patents as a form of security. A key finding was that the information gap caused by traditional financial accounting principles and IAS 38 for intangibles in respect of internally generated patents was not the only information asymmetry problem for innovating SMEs. In fact, standard information gathering during credit appraisal produced even less information about SME patent assets than originally thought, due to the unintended effects of the small companies regime and lack of narrative corporate report. To rectify the patent “information gap”, the author concluded that company law should take the lead to provide a “true and fair” view of internally generated patent assets via voluntary disclosure of patent information and strategy in their narrative corporate report. Corporate reporting standards enhance the quality and reliability of the patent information presented because directors need to be satisfied that their reports show a true and fair view. This solution should reassure and improve lenders’ appreciation of the value patent assets and how they contribute to an innovating SMEs business, while simultaneously promoting accountability and stewardship for corporate patent assets. The analysis required joined-up thinking at an academic level adopting a legal approach to examine the barriers to patent-backed debt finance from the perspectives of the borrower and the lender.

A case study of the content and structure of narrative disclosure in a multinational pharmaceutical company's annual report was presented in Chapter 6. The idea of studying the content of narrative disclosures in corporate annual reports is not new, what is new is considering corporate narrative, specifically of patent information and strategy disclosures, within the context of the UK's patent ecosystem and corporate regulation.

The author's research cuts sharply across academic boundaries to make a synthesis regarding corporate disclosure of patent information and strategy by innovating SMEs in the UK that has not been made before. The insights of this thesis provide an academic audience with a deeper level of legal analysis as to why patent-backed debt-finance for innovating SMEs is undeveloped and underused, namely, the absence of reliable patent information with which to determine the financial value of patent assets. The research produced a pragmatic potential solution to simplify patent information disclosure via an original three-tier *Essential, Desirable & Optional* model for enhanced voluntary narrative corporate disclosure. The model goes beyond mere description of the patent assets and demonstrates the "Patent Value Story" – the role the patents assets play in future value creation for the business. It is this interconnectedness that is crucial information for providers of capital and debt finance. Ultimately, this thesis adds to the body of knowledge related to patent-backed and IP debt finance generally with a view to application within the UK. While the work will further academic discourse, it is hoped that this research will have impact beyond the academic community and the author's recommendations will be adopted with the broadest possible participation by innovating SMEs, lenders and government policymakers, with consensus among stakeholders in the field. However, if the research proves to serve the purpose of initiating debate in this multidisciplinary field, helping to reduce one of the barriers to the patent-backed debt lending process, it will have served an equally important purpose.

In conclusion, patents are embedded in the economic foundation of the UK and managing corporate wealth is vital to the future. However, there is a dearth of corporate financial and narrative information about which companies most effectively exploit patents and how they do it. Voluntary narrative corporate disclosures made by innovating SMEs should be a powerful tool for communicating the “patent value story” and informing lenders and other stakeholders who increasingly evaluate directors’ fiduciary obligations and risks associated with valuable corporate patent assets.

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BIBLIOGRAPHY

Books and articles

A Guide to Funding Innovation (2013-2014) Oxford Innovation Ltd

‘A revolution postponed’ (May/June 2014) *Intellectual Asset Management* at pp5-6

‘Accounts and Tax Returns for Smaller Companies’ at <https://www.gov.uk/prepare-file-annual-accounts-for-limited-company/prepare-annual-accounts>

Adams, M. and Oleksak, M. ‘Fitting the Intangibles Pieces Together: A Call to Arms’ (30 September 2010) *Intellectual Asset Magazine*

Admati, A. and Hellwig, M. *The Bankers’ New clothes: What’s wrong with Banking and What to Do about It* (2013) Princeton University Press

Aguilar, F. *Scanning the Business Environment* (1967) Macmillan, USA

Albu, C.N., Albu, N. and Alexander, D.J.A. The True and Fair View Concept: A Case Study of Concept Transferability (14 April 2009) p3 at SSRN: <http://ssrn.com/abstract=177000>

Allison, S.T and Messick, D.M. ‘The Group Attribution Error’ (1985) Vol.39, No. 4, *Journal of Experimental Social Psychology* pp578-589

Allsebrook, D. & Maestre, S. *Intellectual Property as a Security Device* (1996) Meredith Lectures, McGill University 295

Arnold, J.A. and Moizer, P. ‘A Survey of the Methods used by UK Investment Analysts to Appraise Investment in Ordinary Shares’ (1984) *Accounting and Business Research* Vol. 14, No. 55, Summer, pp195-207

Arping, S. and Sautner, Z. ‘Did SOX Section 404 Make Firms Less Opaque? Evidence from Cross-Listed Firms’ (2012) *Contemporary Accounting Research*, 30, 2013, 1133-1165. Available at SSRN <http://ssrn.com/abstract=1561619>

Arundel, A. and Kabla, I. What percentage of innovations are patented? Empirical estimates for European firms’ (1998) *Research Policy*

Baltussen, G. Behavioural Finance: An Introduction (13 Jan 2009) Available at SSRN: <http://ssrn.com/abstract=1488110> or <http://dx.doi.org/10.2139/ssrn.1488110> accessed 9 March 2015

Bannerjee, A. V. ‘A Simple Model of Herd Behaviour’ (1992) 107: 797-817 *Quarterly Journal of Economics*

Barkley Rosser, J. 'A Nobel Prize for Asymmetric Information: The Economic Contributions of George Akerlof, Michael Spence, and Joseph Stiglitz' (2003) Vol. 15, Issue 1, *Review of Political Economy*, Taylor and Francis

'Basel III: A global regulatory framework for more resilient banks and banking systems' (December 2010, Revised June 2011) *Basel Committee for Banking Supervision, Bank for International Settlements* pp6-23 at <http://www.bis.org/publ/bcbs189.pdf> [Accessed 21 November 2014]

Beck, T., Demirguc-Kunt, A and Levine, R. 'Legal Theories of Financial Development' (2000) Vol.17 No. 4 *Oxford Review of Economic Policy*

Bennett, P., Holzman, L., Hanlon, R., & Sobel, D., 'Security interests-less than secure?' (2006) *Managing Intellectual Property*

Berger, A.N., Frame, W.S. and Miller, N.H. 'Credit scoring and the availability, price, and risk of small business credit' (2005) *Journal of Money, Credit, and Banking*, Vol. 37 No. 2, pp191-222

Berger, A.N. and Udell, G.F. 'A more conceptual framework for SME finance' (2006) *Journal of Banking & Finance*, Vol. 30 No. 11, pp2945-66

Berges, A., Guillen, M.F., Moreno, J.P, Ontiveros, E. *A New Era in Banking: The Landscape After the Battle* (2014) Bibliomotion, Inc. Kindle Edition

Bernstein, Peter, L. *Capital Ideas Evolving* (2007) John Wiley & Sons, New York

Bezant. M. "The Use of Intellectual Property as Security for Debt Finance' (1998) 1 *Journal of Knowledge Management* 237

Bezant, M. and Punt, R. 'The Use of Intellectual Property as Security for Debt Finance' (1997) *Intellectual Property Quarterly* 297

Bhattacharya, H. *Banking Strategy, Credit Appraisal and Lending Decisions: A Risk-Return Framework* (2010), Oxford University Press, Oxford

Biggs, S.F., Bedard, J.C., Gaber, B.G. and Linsmeier, T.J. 'The effects of task size and similarity on the decision behaviour of bank loan officers' (1985) *Management Science*, Vol. 31 No. 8, pp970-86

Blair, M.M. and Wallman, S.M.H. *Unseen Wealth: Report of the Brookings Task force on Intangibles* (2001) Brookings Institution Press, Washington D.C.

Bontis, N. 'Intellectual Capital Disclosure in Canadian Corporations' (2003) 7, 1/2. 9-20 *Journal of Human Resource Costing and Accounting*

Bootle, R. *The Trouble with Markets: Saving Capitalism from Itself* (2009) Nicholas Brealey Publishing, London

- Bornstein, D. *How to Change the World: Social Entrepreneurs and the Power of New Ideas* (20 Sept 2007) Oxford University Press USA, 2nd edition
- Bradley, K. 'Intellectual Capital and the New Wealth of Nations' (21 October 2006) Lecture given at the *Royal Society of Arts*, London
- Brand, O. 'Conceptual Comparison: Towards a Coherent Methodology of Comparative Legal Studies' (2007) *Brooklyn Journal of International Law*, 32(2), 405-466, p409
- Brookings, A. *Intellectual Capital: Core Asset for the Third Millenium Enterprise* (1996) Cengage Learning EMEA, USA
- Burr, V. *An Introduction to Social Constructionism* (1995) London, UK: Routledge
- Cahn, A. and Donald, C. *Comparative Company Law: Text and cases on Governing Corporations in Germany, the UK and USA* (2010) Cambridge University Press, pp337-340.
- Cain, B. and Marshall, J. 'Taking Security over Patents' (March 2014) *Taylor Wessing* at <http://www.taylorwessing.com/synapse/march14.html> [Accessed 11 November 2014]
- Canibano, L., Covarsi, M. and Sanchez, M. 'The Value Relevance and Managerial Implications of Intangibles: A literature review' (1998) OECD, Directorate for Science, Technology and Industry
- 'Chinese company's \$1.3 billion patent and trademark loan enters the IP deal Pantheon' (4 April 2014) *Intellectual Asset Management Blog* at www.iam-magazine.com/blog
- 'Chinese companies have secured over \$10million in patent-backed loans since 2008 (6 March 2014) IAM Blog at <http://www.iam-magazine.com/blog/detail.aspx?g=7fd84e0c-af7a-4d28-ba91-746bbb44e318&q=china#search=%22china%22>
- Claessens, S., Kose, M.A., Laeven, L., Valencia, F. *Financial Crises: Causes, Consequences, and Policy Responses* (February 2014) International Monetary Fund
- Clarkson, D. 'Britain avoids triple-dip recession' (16 April 2013) *MSN Money* at <http://money.uk.msn.com/features/britain-avoids-triple-dip-recession>
- Cohen, M. China blog 'China to Provide Financial Incentives for Filing Patent Applications Abroad' (12 June 2012) ChinaIPR blog at <http://chinaipr.com/2012/06/>
- Collins, R. 'A Graphical Method for Exploring the Business Environment' Technical Paper at <http://users.ox.ac.uk/~kell0956/docs/PESTLEWeb.pdf> [Accessed 24 March 2014]
- 'Competition and Patents: Introduction, Studies and Articles' WIPO at <http://www.wipo.int/patent-law/en/developments/competition.html> (Accessed 24 March 2015)
- Coren, G. *James Dyson Against the Odds: An Autobiography* (1997) Orion Business, Great Britain

Cowley, A. and Swaffield, A. 'The Strategic Report A practical guide to the new regulations' (2014) Deloitte at www.ukaccountingplus.co.uk

Crompton, S. 'Patent Litigation Funding on the Rise in the UK' (29 August 2012) *Managing IP* at <http://www.managingip.com/Article/3081518/Patent-litigation-funding-on-the-rise-in-UK.html>

Crosse, H. D. *Management Policies for Commercial Banks* (1962) Prentice-Hall Inc., Englewood, New Jersey

Cull, R., Lance E., Davis, N. R., Lamoreaux-Rosenthal, J. 'Historical financing of small-and medium-size enterprises' (2006) Vol. 30, Issue 11, *Journal of Banking & Finance* pp3017-3042.

Dalgano, S, 'Technology Valuations – The Whys and Wherefores and Why Nots' (2003) Paper presented at *LEZANZ Conference* in Adelaide

Das, S. 'Protecting ideas is crucial for eco-technology to succeed' (4 June 2010) *The Financial Times*, The Environmental and Intellectual Property Special Report

Davies, J. *A guide to directors' responsibilities under the Companies Act 2006* (2007) Association of Chartered Certified Accountants

Davies, I.R. 'Secured Financing of Intellectual Property Assets and the Reform of English Personal Property Security Law' (Autumn 2006) 26(3) *Oxford Journal of Legal Studies* pp559-583

Davis, A. 'Seeds of Change: Emerging sources of non-bank funding for Britain's SMEs' (2012) *Centre for the Study of Financial Innovation*, p 1 at http://www.csfi.org/files/Seeds_of_Change_by_Andy_Davis_PDF.pdf [Accessed 21 November 2014]

Denoncourt, J. 'Hanging on Every Word' (May 2002) *Managing Intellectual Property*

Denoncourt, J. 'Intellectual Property and Venture Capital: The Secrets to Building Innovation Ecosystems: A Special Report' (9 Sept 2014) *IP Finance blogspot* at <http://ipfinance.blogspot.co.uk/search?q=Denoncourt> [accessed 14 November 2014]

Denoncourt, J. 'Reform to the UK Company Registration of Charges Scheme, The Companies Act 2006 (amendment of Part 25) Regulations 2013 (SI 2013/600)' (2013) Vol. 22 *Nottingham Law Journal*, pp138-140

DeRuiter, J. and Holston, P. 'Drug Patent Expirations and the "Patent Cliff"' (20 June 2012) *US Pharmacist*, Jobson Publications at <http://www.uspharmacist.com/content/s/216/c/35249/>

Deszo, Linda and Loewenstein, G. 'Lenders' blind trust and borrowers' blind spots: A descriptive investigation of personal loans' (2012) *Journal of Economic Psychology*, Vol. 33 Issue 5 pp996-1011

Di Giantomasso, F. 'The tangible problem of intangibles' (1 Dec 2001) *AICD Review*, p23

Directive 2012/6/EU of the European Parliament and of the Council of 14 March 2012 amending Council Directive 78/660/EEC on the annual accounts of certain types of companies as regards micro-entities (2012) Official Journal of the European Union p L81/3 at http://ec.europa.eu/internal_market/accounting/legal_framework/annual_accounts/original_text_en.htm

Donaldson, T. and Preston, L. E. Donaldson, Thomas; Preston, Lee E. 'The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications' (1995) 20 (1): 70–71 *Academy of Management Review* (Academy of Management)

Donegan, C. 'Industry report – IP finance: the asset class that fell to earth' (20 May 2015) at <http://www.iam-media.com/industryreports/detail.aspx?g=9b5ac3a7-9514-4a99-85d8-a17b4f39bcd0>

Edwards, D. 'Patent backed securitization: Blueprint for a new asset class' (2000) *Gerling NCM Credit Insurance*

Dutton, W. and Helsper, E. *The Internet in Britain* (2007) Oxford Institute, Oxford

Ebke, W. *Maerkte machen Rechtsbruch Gesellschafts-und Unternehmensrecht!* (2000) Festschrift Utter 12

Eccles, L. 'How bank lending fell by £365 Billion in five years' (7 September 2014) *Daily Mail* at <http://www.dailymail.co.uk/news/article-2747042/How-bank-lending-fell-365-BILLION-five-years-delight-controversial-payday-loan-firms.html> [Accessed 21 November 2014]

Edvinsson, L. *Accounting for Minds* (1997) out of print

Edvinsson, L. and Malone, M. *Intellectual Capital: Realizing your Company's True Value by Finding Its Hidden Brainpower* (1997) Harper Business, USA.

Edvinsson, L. and Sullivan, P. 'Developing a model for managing intellectual capital' (1996) *European Management Journal* Vol. 14, pp356-364

Edvinsson, L. and Kivikas, M. 'Intellectual Capital (IC) or Wissenbilanz process: some German experiences' (2007) *Journal of Intellectual Capital*, Vol. 8(3) pp376-385

Edvinsson, L. *IC 21: reflections from 21 years of IC practice and theory* (2013) *Journal of Intellectual Capital* Vol. 14(1), p163-172.

'Encouraging Employers to Use Human Capital Reporting: A Literature Review of Implementation Options' (February 2013) Briefing Paper February, UK Commission of Employment and Skills at <http://dera.ioe.ac.uk/17367/1/encouraging-employers-to-use-human-capital.pdf>

Edwards, D. *Patent-backed securitization: A Blueprint for a New Asset Class*, Gerling NCM

‘Ensuring creditor protection is Asia-Pacific construction projects Part II: Property Securities law in the Asia-Pacific Region’ (2013) *DLA Piper* at http://www.dlapiper.com/~media/Files/Insights/Publications/2013/02/Ensuring%20creditor%20protection%20in%20construction%20pro_/Files/propertysecuritieslawasiapacific/FileAttachment/propertysecuritieslawasiapacific.pdf [Accessed on 14 November 2014]

Ernst, H. ‘Patenting Strategies in the German Mechanical Engineering Industry and their Relationship to Company Performance’ (1995) *Technovation*, Vol. 15 No.4, pp225-240

Ernst, H. ‘Patent Information for Strategic Technology Management’ (2003) *World Patent Information*, Vol. 25, Issue 3 pp233-242.

‘Europe 3Q 2014’ (2014) *Dow Jones Venture Source*, p2 at <http://images.dowjones.com/company/wp-content/uploads/sites/15/2014/10/Dow-Jones-Europe-VentureSource-Report-3Q-2014.pdf> [Accessed 21 November 2014]

Ferguson, N. *The Ascent of Money: A Financial History of the World* (2012) Penguin Books
‘Five years of Sarbanes-Oxley’ (26 July 2007) *The Economist*

Flack, J.H. ‘Secured Transactions: Practical Things Every Business Law Should Know About UCC Article 9’ (March 2011) *American Bar Association Newsletter* at <http://apps.americanbar.org/buslaw/committees/CL983500pub/newsletter/201103/flack.pdf>

‘Foley Study Reveals Continued High Cost of Being Public’ (2 August 2007) at <http://www.foley.com/foley-study-reveals-continued-high-cost-of-being-public-08-02-2007/>

Forsythe, M. and Sanderson, H. ‘Financing China Costs Poised to Rise With CDB Losing Sovereign-Debt Status’ (June 2011) *Bloomberg Market Magazine*.

Franks & Co. ‘36% Increase in Official UKIPO Patent Fees’ (27 May 2010) at <http://www.franksco.com/news/2010/5/36-increase-in-official-ukipo-patent-fees>

Frederick, W.R. ‘Recent Developments in Intellectual Capital Reporting and their Policy Implications’ (2009) *OECD Education Working Papers*, No. 17, OCED Publishing at http://www.oecd-ilibrary.org/education/recent-developments-in-intellectual-capital-reporting-and-their-policy-implications_227362757626

Frey, C.B. *Intellectual Property Rights and the Financing of Technology Innovation* (2013) Edward Elgar Publishing Limited

‘From ideas to Assets: Singapore’s IP Financing Scheme’ (1 September 2014) *Managing IP* at <http://www.managingip.com/Article/3382687/From-idea-to-asset-Singapores-IP-financing-scheme.html>

Fulbright’s 9th Annual Litigation Trends Survey: Litigation Bounces Back (26 February 2013) at <http://www.nortonrosefulbright.com/news/93066/fulbrights-9th-annual-litigation-trends-survey-litigation-bounces-back-regulation-hits-high-us-release>

Fulcher, James *Capitalism A Very Short Introduction* (2004) Oxford University Press

Furneaux, R., Kaye, R., Holah, M., Bicknall, P. 'IP in business transactions: UK (England and Wales) Overview', *Thomson Reuters*, at <http://uk.practicallaw.com/0-501-8472#a799071>

'G20 Leaders' Statement The Pittsburgh Summit' (2009) Pittsburgh, Illinois at https://www.g20.org/official_resources/leaders%E2%80%99_statement_pittsburgh_summit

Gallagher & Cawsey Co. 'Wading Through the Intellectual Property Requirements of the Sarbanes-Oxley Act of 2002' (June 2005) at <http://www.invention-protection.com>

Garrett J. F. *Banks and Their Customers* (1995) Dobbs Ferry NY: Oceana Publications

Garvey, s. 'Strategies to Improve Patenting and Enforcement' (29 May 2008) IPkat blog at <http://ipkitten.blogspot.co.uk/2008/05/strategies-to-improve-patenting-and.html>

Ghafele, R. 'Accounting for Intangibles' (2010) 5(7): 521-530 *Journal of Intellectual Property Law & Practice*

Ghafele, R. 'Getting a grip on accounting and intellectual property' (2005) WIPO SME Newsletter at <http://www.wipo.int/sme>.

Gitomer, J. Little Teal Book of Trust (2008) *Pearson Education Inc.* Publishing as FT Press

'Glaxosmithkline undervalued say analysts' (11 December 2013) at <http://www.morningstar.co.uk/uk/news/114764/glaxosmithkline-undervalued-say-analysts.aspx>

Goetzmann, W. N. 'Fibonacci and the Financial Revolution (March 2004) NBER Working Paper 10352

Goodridge, P. et al, *UK Investment in Intangible Assets: Report for NESTA* (2011) NESTA Working Paper No. 14/02, p15 at https://www.nesta.org.uk/sites/default/files/1402_working_paper_-_uk_investment_in_intangible_assets_report_for_nesta.pdf

Graham, P. 'Registration of Company Charges' [2014] *Journal of Business Law* 175

Grossfeld, B. 'Global Accounting: Where Internet Meets Geography' (2000) Vol.48, No. 2 *The American Journal of Comparative Law*

Guellec, D., Martinez, C. and Zuniga, P. "Blocking Patents: What They Are and What They Do" (5 June 2008) Preliminary Paper at: <http://ftp.zew.de/pub/zew-docs/veranstaltungen/innovationpatenting2008/papers/GuellecMartinezZuniga.pdf>

Gullifer, L. 'Personal Property Security Law: Where Next?' (2012) *Butterworths Journal of International Banking and Financial Law* 465 and 541

Guthrie, J. and Petty. R. 'Intellectual Capital Literature Review: Measurement, Reporting and Management' (2000) Vol. 1, Issue: 2, 155-176 *Journal of Intellectual Capital*

Haapio, H. 'Visualizing Contracts and Legal Rules for Greater Clarity' (2010) 44(3) J.A.L.T.

Haldane, IBS, 'The Truth about Death' (1963) 58 *Journal of Genetics* 463-4

Hall, B. H., Helmers, C., Rogers, M. and Vania, S. 'The importance (or not) of patents to UK firms' at: <http://niesr.ac.uk/sites/default/files/publications/dp410.pdf>

Hall, B. H. 'Patents and Patent Policy' (2007) *Oxford Review of Economic Policy* 23 (4): 568-587

Hall, B. H., Jaffe, A. and Trajtenberg, M. 'Market value and patent citations' JEL Classification: O31, O38 UC Berkeley at http://eml.berkeley.edu/~bhhall/papers/HallJaffeTrajtenberg_RJEjan04.pdf, p1.

Halling, D.B. *The Decline and Fall of the American Entrepreneur: How little known laws and regulations are killing innovation* (2009) Self-published and available on www.amazon.co.uk

Hand, J. and Lev, B. *Intangible Assets: Values, Measures, and Risks* (2003) Oxford University Press

Harrison, S. and Sullivan, P. H. *Einstein in the Boardroom* (2006) Wiley

Harvey, F. 'Scramble for funds in a harsh climate' (4 June 2010) *The Financial Times*, The Environmental and Intellectual Property Special Report

Hatzikiriakos, K. *Secured Transactions in Intellectual Property Software as Collateral* (2006) Lexus Nexus Butterworths, London

Hedelin, E. and Sjo'berg, L. 'Risk Assessments – Loan Officers' Assessment of New Entrepreneurs' Personal Characteristics' (1993) NUTEK, Stockholm

Henry, M. 'How Effective is Your Security over Intellectual Property?' (1991) *Journal Business Law* 507

Higson, A.W. 'An Alternative Basis for the Construction of a Conceptual Framework Incorporating Financial Reporting' Discussion Paper Series 192, *Massey University*: Department of Accountancy and Business Law

Hilson, J.F. *Asset-Based Lending: A Practical Guide to Secured Financing* (August 2014, 7th Edition) (Banking and Commercial Law Library), Practising Law Institute, New York, USA

'Hong Kong Banks sign up to groundbreaking intellectual capital initiative' (April 2010) Intellectual Asset Magazine at <http://www.iam-magazine.com/blog/Detail.aspx?g=3d6fc595-6202-40f0-ba82-6d5ee1b05def>

Horrigan, B. *Corporate Social Responsibility in the 21st Century: Debates, Models and Practices Across Government, Law and Business* (2010) Edward Elgar Publishing

Hsu, D. and Ziedonis, R. 'Patents as Quality Signals for Entrepreneurial Ventures' (2007) paper presented at *DRUID Summer Conference*

Humphrey, A. 'SWOT Analysis for Management Consulting' (December 2005) *SRI Alumni Newsletter*

Hwaidi, M. 'Why and How Empirical Study in Commercial Law?' (2014) *Annual Conference of Socio Legal Study Association* at Robert Gordon University.

'Income Contingent Repayment Plan 2 – Interest Rates' Student Loans Company at http://www.studentloanrepayment.co.uk/portal/page?_pageid=93,6678715&_dad=portal&_schema=PORTAL

Inman, Philip, 'Vince Cable hits out at Bank of England over loans to small business: Business secretary angered by blocking of regulatory reforms that favour mortgages rather than lending to private companies (19 June 2014) *The Guardian* at <http://www.theguardian.com/business/2014/jun/18/vince-cable-bank-england-loan-small-business>

Instefjord, N. and Nakata, H. 'Loan Monitoring and Bank Risk' (17 April 2014) First Draft available at SSRN <http://ssrn.com/abstract=2426149> or <http://dx.doi.org/10.2139/ssrn.2426149>

Intellectual Property Financing Scheme (14 November 2014) IPOS see <http://www.ipos.gov.sg/IPforYou/IPforBusinesses/IPFinancingScheme.aspx>

'International Regulatory Framework for Banks (Basel III): Capital' (June 2011) *Basel Committee for Banking Supervision, Bank for International Settlements* at <http://www.bis.org/bcbs/basel3.htm> [accessed 21 November 2014]

Introduction: Mr Carsten Fink, Chief Economist WIPO (26 March 2010) Document Code WIPO/IP/ECON/GE/10/REF/A/ROUNDTABLE/INTRO at http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=137479

Inventor Reward and Recognition Programs Benchmark (2011) ipPerformance Group, Naperville, Illinois

'Inventor Sir James Dyson still the region's richest' (9 May 2011) This is Somerset (Bristol)

IPScore®2.2 Manual (2009) European Patent Office at <http://www.epo.org/searching/free/ipscore.html>

Jacob, R. 'Patents and Pharmaceuticals' (29 November 2008) Paper given at the Presentation of the Directorate-General of Competition's *Preliminary Report of the Pharma-sector Inquiry*

'Japanese Guidelines for Disclosure of Intellectual Assets Based Management', no English language reference available.

Johanson, U., Koga, C., Skoog, M. and Henningsson, J. 'The Japanese Government's Intellectual Capital Reporting Guideline: What are the challenges for firms and capital market agents?' (2006) *Journal of Intellectual Capital* Vol. 17 Issue 4, pp474-491

Josef Ackermann im Gespräch: ‘Ohne Gewinn ist alles nichts’ (20 November 2009) interview in *Süddeutsche Zeitung* <http://www.sueddeutsche.de/geld/josef-ackermann-im-gespraech-ohne-gewinn-ist-alles-nichts-1.144881>

Kahnemann, D. Slovic, P. and Tversky, A. *Judgment under Uncertainty: Heuristics and Biases* (1982) Cambridge University Press, Cambridge, MA

Keay, A. ‘The Duty to Promote the Success of the Company: Is it Fit for Purpose?’ p3 at <http://www.law.leeds.ac.uk/assets/files/research/events/directors-duties/keay-the-duty-to-promote-the-success.pdf>

Keay, A. *The Enlightened Shareholder Value Principle and Corporate Governance* (2013) Routledge Research in Corporate Law, Abingdon and New York: Routledge

Keay A. and Kosmin, L. *Directors' Duties* (2014) Second edition. Bristol: Jordan Publishing

Kettle, R. ‘Balance Sheets and Accounts under the Companies Act, 1948’ (1950) *Studies in Accounting* p17 edited by W.T. Baxter, London: Sweet & Maxwell.

Keynes, J. M. ‘The General Theory of Employment’ (1937) 51, 2 *Economic Journal*

Khatri, N. and Ng, H.A. ‘The role of intuition in strategic decision making’ (2000) *Human Relations*, Vol. 53, No.57, pp57-86

Kirkpatrick, D. *Facebook Effect: The Real Inside Story of Mark Zuckerberg and the World's Fastest Growing Company* (2012) The Random House Group

Kirkpatrick, G. ‘The Corporate Governance Lessons from the Financial Crisis’ (2009) 96 *Financial Market Trends* 1 at 4

Knight, Frank, H. *Risk, Uncertainty and Profit* (1911) Boston as quoted in Ferguson, N. *The Ascent of Money* (2012) Penguin Books

Knopf, H. *Security Interests in Intellectual Property* (2002) Toronto: Thomson/Carswell

Kosfeld, M., Heinrichs M., Zak, P. J., Fischbacher, U., and Fehr, E. ‘Oxytocin increases trust in humans’ (2005) *Nature* 435, pp673-676

Kote, L. and Drehwing, E. ‘The Interplay between IP and Sarbanes-Oxley – Outline & Background Material’ (2005) *PLI's Course Handbook: Handling IP Issues in Business Transactions* at www.darbylaw.com

Kramer, W.J. and Patel, C.B. ‘Securitisation of intellectual property in the US market Marshall (6 June 2013) Gerstein & Borun, Chicago, IL at http://www.ipo.org/wp-content/uploads/2013/04/Securitisation_of_IP_in_the_US.pdf

Lang, Mark, H. and Lundholm, Russell, J. ‘Corporate Disclosure Policy and Analyst Behaviour’ (October 1996) *The Accounting Review* Vol. 71, No.4, 467-492.

- Lee, J. 'Big Achievers Share The Greatest Risks They Ever Took' (3 July 2011) at <http://www.forbes.com/2011/03/07/greatest-risk-they-ever-took-2011-entrepreneurs.html>
- Lee, L.A. and Tweedie, D.P. 'The private shareholder and the corporate report: A report to the Research Committee of the Institute of Chartered Accountants in England and Wales' (1977) *Institute of Chartered Accountants in England and Wales*, London
- Lee, L.A. and Tweedie, D.P. 'The Institutional Investor and Financial Information' (1981) *Institute of Chartered Accountants in England and Wales*, London.
- Leo, K. 'Intangible assets: Seeking consistency' (November 1999) *Australian CPA*
- Lerner, J. *The Architecture of Innovation: The Economics of Creative Organizations* (2013) Oxford University Press
- Lev, B. *Intangibles Management, Measurement, and Reporting* (2001) Brookings Institution Press, Washington, D.C.
- Lin, Tom W. C. 'A Behavioral Framework for Securities Risk 16 (April 2012) *Seattle Law Review* Vol. 34, p325 at <http://ssrn.com/abstract=2040946>
- Lipton, J. 'Intellectual Property in the Information Age and Secured Finance Practice' (2002) *EIPR* 358
- Lipton, J. *Security Over Intangible Property* (2000) LBC Information Services, London
- Lloyd, R. 'New banking group launches with focus on improving patent quality' (15 October 2014) *Intellectual Asset Magazine* blog at <http://www.iam-magazine.com/blog/detail.aspx?g=972D0D5D-D116-42FD-945D-82AC28C33B3A> [Accessed 7 November 2014]
- Macneil, C. 'Personal property securities and intellectual asset management: thinking outside the box' (27 August 2014) *Intellectual Asset Management* at <http://www.iam-magazine.com/reports/Detail.aspx?g=3b995832-b39d-41d0-a9d6-f50dfcf3a83d> [Accessed on 12 November 2014]
- Malone, S. 'Quantifying the Brave New World' (1999) *Hoover Digest*, 1999 No. 1
- Maslow, A.H. 'A theory of human motivation' (1943) *Psychological Review*, 50(4), 370–96
- Mason, S. French, D. and Ryan C. *Company Law* (2013-2014) Oxford University Press
- Mayer, R.C., Davis J.H. and Schoorman, F.D. An integrative model of organizational trust (1995) 20 (3) *Academy of Management Review*, pp709-734
- McLeod, S. A. Qualitative Quantitative (2008) at <http://www.simplypsychology.org/qualitative-quantitative.html>
- Medhurst, D. *A Brief and Practical Guide to EC Law*, 145-147 (2d ed. 1994)

- Manickavasagam, V. 'Intellectual Property (IP) Best Practices in the Post Sarbanes-Oxley Act Era' (February 2011) at www.icisi.edu
- Marenberg, B. 'What Corporate Directors Need to Know About Intellectual Property' (9 March 2010) Life Science Leader Magazine at <http://www.lifescienceleader.com/doc/what-corporate-directors-need-to-know-about-intellectual-property-0001>
- Martin, D. and Beling, P. 'Patent Litigation Risk Characterization: Prospective identification of financial risk in patent holdings' (2004) M-Cam draft.
- Mathews, M. R. and Higson, A.W. 'Potentially dysfunctional impacts of harmonising accounting standards: the case of intangible assets' (2000) Massey University at <http://hdl.handle.net/10179/2536>
- Maubussin, Michael J. *The Success Equation: Untangling Skill and Luck in Business, Sports, and Investing* (2012) Harvard Business Review Press
- McDonald, L and Drinkwater, R. *Realistic Valuations of Intellectual Property: Methods and techniques for valuing IP* (2004) Report commissioned by the Australian Institute for Commercialisation
- McEachern, W.A. *Economics: A Contemporary Introduction* (2012) 10th ed., Cengage Learning
- McLaren, R. H. *Secured Transactions in Personal Property* (1989) (2nd ed) Looseleaf, Scarborough: Maxwell
- McLaughlin, S. *Unlocking Company Law* (2015) 3rd ed. Routledge
- Mehta, S. S. *Commercializing Successful Biomedical Technologies* (2008) Cambridge University Press, New York
- Michel, J. and Bettels B. "Patent citation analysis" (2001) 51 (1) *Scientometrics*, pp185-201
- Moberly, Michael, D. *Safeguarding Intangible Assets* (2014) Butterworth-Heineman
- Moore, James, F. *The Death of Competition: Leadership and Strategy in the Age* (May 1997) HarperCollins Publishers.
- Moore, M. (QC) Opinion entitled, 'True and Fair Requirement Revisited' made to the Financial Reporting Council
- Morgan, Robert; Hunt, S 'The Commitment-Trust Theory of Relationship Marketing' (July 1994) *The Journal of Marketing* 58 (3): 20–38
- Mulcahy, D., 'Six Myths About Venture Capital Offer Dose of Reality to Startups' (16 April 2013) *Ewing Marion Kauffman Foundation* at <http://www.kauffman.org/newsroom/six-myths-about-venture-capital-offer-dose-of-reality-to-startups-in-harvard-business-review-article.aspx>

Munari, F., Odasso, M. and Toschi, L. 'Patent-backed finance' in Munari, F. and Oriani, R. (Eds) *The Economic Valuation of Patents: Methods and Applications* (2011) Edward Elgar Publications Ltd

Murphy, W., Orcutt, J. and Remus, P. *Patent Valuation Improving Decision Making through Analysis* (5 April 2012) Wiley

Neilson, C.. 'Dilemmas in the usefulness of business reporting narratives towards investors and other professional decision-makers' Aarlborg Universitet, Department of Business Studies, Denmark, p 1 ISBN 9788791646423

Nelson, S.L *Understanding the Basic Principles of Accounting* (2011) *Quickbooks*

Nelson. K. and Pritchard, A. 'Litigation Risk and Voluntary Disclosure: The Use of Meaningful Cautionary Language' (August 2007) *2nd Annual Conference on Empirical Legal Studies*

Neuhausen, B., Schlank, R. and Pippin, R. *Accounting for Business Combinations, Goodwill, and Other Intangible Assets* (2007) CCH Incorporated, p246

'New UK Annual Report and Requirements to disclose human rights, diversity and greenhouse gas emissions' (20 June 2013) *Linklaters UK Corporate Update* at <http://www.linklaters.com/Insights/Publication1005Newsletter/UK-Corporate-20-June-2013/Pages/New-UK-annual-strategic-report-disclose-human-rights-diversity-greenhouse-gas-emissions.aspx>

Ngah-King, E. L., & Folta, T. B. 'Going public or private? The role of patent portfolio in equity financing for biotechnology start ups' (2006) *Academy of Management Proceedings*

Palmer, V. 'From Leretholi to Lando: Some Examples of Comparative Law Methodology' (2004) *Global Jurist Frontiers*, Vol. 4 Issue 2, Art. 1

Parker, R. H. and Nobes, C. *An International View of True and Fair Accounting (International Accounting)* (1994) Cengage Learning EMEA

Patent Litigation: is it Worth the Expense? (1 April 2006) Vol 26, No. 7 *Genetic Engineering & Biotechnology News* at <http://www.genengnews.com/gen-articles/patent-litigation-is-it-worth-the-expense/1454/>

'Perfecting security over intellectual property rights and registering security at an intellectual property register' *LexisPSL Banking & Finance* at <http://www.lexisnexis.com/uk/lexispsl/bankingandfinance/document/391290/55KX-XBB1-F185-S0P1-00000-00/Perfecting-security-over-intellectual-property-rights-and-registering-security-at-an-intellectual-property-registry> [Accessed on 11 November 2014]

Perkins, J. 'Registration of Charges over Intangibles' (July 2010) Vol.4, No. 4, *Law and Financial Markets Review*

Phillips, J. 'Katenomics 4: Where to look for an IP-oriented economists' (28 November 2008) The IPKat http://ipkitten.blogspot.co.uk/2011_11_01_archive.html

Phillips, J. 'Intellectual Property as Security for Debt Finance—A Time to Advance?' (1997) EIPR 276

Phillips, J. 'IP finance: The trillion dollar tipping point: a report, and a product launch' (18 September 2014) *IP Finance blogspot* at <http://ipfinance.blogspot.co.uk/2014/09/the-trillion-dollar-tipping-point.html>

Pitkethly, R. 'Intellectual Property Awareness and SMEs: UK IP Awareness Survey 2010' (2010) *UK IPO*

Pletscher, T. 'Corporate Strategies for Managing, Exploiting and Enforcing IP Rights' (December 1988) WIPO pp1- 6

Poltorak, A. and Lerner, P. 'Introducing litigation risks analysis' (May 2001) Issue 109 *Managing Intellectual Property*

'Progress on implementing the UPC and the Unitary Patent' (23 September 2014) *Allen & Overy* at <http://www.allenoverly.com/publications/en-gb/Unitary-Patent-System/Pages/Latest-News.aspx>

Rabinowitz, A.B. 'Keep Your Eye on Your Ball: Patent Holders' Evolving Duty to Patrol the Marketplace for Infringement' (Spring 2007) Vol.5 Art. 1 *Northwestern Journal of Technology and Intellectual Property*

Ramb, F. and Reitzig 'A comparative analysis of the explanatory power of balance sheet and patent information for market values of German firms' (2004) Working paper, *Copenhagen Business School*

Reilly, R.F. 'Attributes That Influence IP Value' (Spring 2015) *Forensic Analysis Insights*

Rhodes, T. and Campbell, M. *Syndicated Lending: Practice and Documentation* (2009) 5th ed. *Euromoney Institutional Investor, Inc.*, Foreword by Sir Andrew Large

Rivette, K., G., & Kline, D. *Unlocking the hidden value of patents: Rembrandts in the attic.* (2000) Boston, Massachusetts: Harvard Business School Press.

Rivette, K., G., & Kline, D. 'Discovering new value in intellectual property' (Jan-Feb 2000) Vol.78 Issue 1, *Harvard Business Review*

Robson, C. *Real World Research* (1993) Blackwell, Oxford

Roos, J. and Roos, G., Edvinsson, L. and Droghetti, N. *Intellectual Capital: Navigating in the New Business Landscape* (1998) Macmillan Business

Rubinfeld, D. L.; Maness, R. 'The Strategic Use of Patents: Implication for Antitrust' in Leveque, F. Shelanski, H. *Antitrust, Patents and Copyright: EU and US Perspectives* (2005) Northampton, Edward Elgar

- Ruddick, G. 'Suspended Tesco executive to return as Dave Lewis overhauls team' (1 December 2014) *The Telegraph* at <http://www.telegraph.co.uk/finance/newsbysector/epic/tsco/11266257/Suspended-Tesco-executive-to-return-as-Dave-Lewis-overhauls-team.html>
- Savage, G. et al, 'Strategies for Assessing and Managing Organizational Stakeholders' (1991) *The Executive*, Vol. 5, No. 2, May 1991
- Savage, G. et al, 'Stakeholder analysis for multi-sector innovations' *Journal of Business and Industrial Marketing*, Vol. 17, Issue 2/3, pp181-203
- Schell, C. 'The Value of the Case Study as a Research Strategy' (1992) *Manchester Business School* at <http://www.finance-mba.com/Case%20Method.pdf>
- Schramm, C. and Bradley, H. 'How Venture Capital Lost Its Way' (2009) *BusinessWeek* at www.kauffmann.org
- 'Self-financing' (18 February 2014) *Trizle* at <http://www.trizle.com/tips/20-self-financing>
- Siebrasse, N. V. 'A Review of Secured Lending Theory' (1997) Faculty of Law, University of New Brunswick
- Shakespeare, C. 'Sarbanes–Oxley Act of 2002 Five Years On: What Have We Learned?' (2008) *Journal of Business & Technology Law*: 333
- Shiller, Robert, J. 'Human Behaviour and the Efficiency of the Financial System (1999) Vol. 1, Part C, Chapter 20, *Handbook of Macroeconomics*, Elsevier
- 'Singapore: IP Financing Scheme Launched' (16 July 2014) *Managing IP* at <http://www.managingip.com/Article/3362420/Singapore-IP-financing-scheme-launched.html>
- Stilwell, Frank. *Political Economy: the Contest of Economic Ideas* (2002) First Edition. Oxford University Press, Melbourne, Australia
- Song Xianzhong and Liu Zhen, 'On Financing Efficiency of Technology Innovation of High-tech Enterprise', (2008) *Journal of Accounting*, No.8, pp10-12
- Stein, H. *Beyond the World Bank Agenda: An Institutional Approach to Development* (2008) University of Chicago Press
- Striukova, L. and Unerman, J. and Guthrie, J. 'Corporate Reporting of intellectual capital: Evidence from UK companies (2008) Vol. 40 pp297-313 *The British Accounting Review*
- Sullivan, P. H. *Value-Driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value* (2000) Wiley
- Surowiecki, J. *The Wisdom of Crowds: Why the Many are Smarter than the Few* (2005) Abacus, New York

Susskind OBE, R. *The End of Lawyers? Rethinking the Nature of Legal Services* (2008) Oxford University Press

Sveiby K.E. *The New Organisational Wealth - Managing and measuring Knowledge-Based Assets*. (1997) Berrett-Koehler, San Francisco

Sykes, J. and King, K. *Valuation and exploitation of intellectual property and intangible assets* (2003) Emis Professional Publishing

Taylor Wessing Global IP Index 2014 at <http://www.taylorwessing.com/ipindex/>

‘The Coalition: our programme for government’ (May 2010) *HM Government* at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78977/coalition_programme_for_government.pdf

‘The expanding market for IP finance’ (2010) *IAM Strategy*

‘The Perfect Storm: Corporate Disclosure, Shareholders, and the Importance of Intellectual Property’ at <http://www.ipprospective.com/portfolio-potential/the-perfect-storm-corporate-disclosure-shareholders-and-the-value-of-intellectual-property/>

‘The Role of the Chief Intellectual Property Officer’ (2013) INTIPSA at <http://www.intipsa.com/wp-content/uploads/2013/01/INTIPSA-Tips-The-role-of-the-CIPO1.pdf>

Thomas, L.C. ‘A survey of credit and behavioural scoring: forecasting financial risk of lending to consumers’ (2000) *International Journal of Forecasting*, Vol. 16 No. 2, pp 149-72

Tier, Mark *The Winning Investment Habits of Warren Buffett & George Soros* (2005) St. Martin’s Press, NY, NY, pp296–298

‘Tighter Banking Rules Will Drain £1 tr from Financial System Study Shows’ (10 July 2010) *The Guardian*

‘To hack or not to hack? A new report on patent thickets’ (22 August 2013) UKIPO Facto blog at <http://www.ipo.gov.uk/blogs/ipofacto/2013/08/22/to-hack-or-not-to-hack-a-new-report-on-patent-thickets/>

‘To manage and Account for Intangibles’ (February 1999) Report of meeting in Brussels as quoted at http://www.ll-a.fr/intangibles/international_accounting.htm

Torremans, P. *Holyoak & Torremans Intellectual Property Law* (7th ed) Oxford University Press

Tosato, A. ‘Security Interests over Intellectual Property’ (2011) 6 (2) *Journal of Intellectual Property Law and Practice*

Tronnberg, C., Hemlin, S. ‘Bankers' lending decision making: a psychological approach’ (2012) *Managerial Finance*, Vol. 38 Issue 11, pp1032-1047

Tuncak, B. The WIPO Information Meeting on IP Financing: Some Notes (1 April 2009) IPKAT Finance blog at <http://ipfinance.blogspot.co.uk/2009/03/wipo-information-meeting-on-ip.html>

Ughetto, E. 'The Financing of Innovative Activities by Banking Institutions: Policy and Regulatory Options in Laperche, B. and Uzunidis, D. (eds) *Powerful Finance and Innovation Trends in a High-Risk Economy* (2008) Palgrave Macmillan

UK Corporate Governance Code (September 2012) Financial Reporting Council at <https://www.frc.org.uk/Our-Work/Codes-Standards/Corporate-governance/UK-Corporate-Governance-Code.aspx>

'United Kingdom: Telling Performance - Surveying Narrative Reporting in annual Reports in 2009' *Deloitte Audit Group*, London

'Using Patents as Collateral Can Free Up Funds for Growing Businesses' at <http://www.ipnav.com/blog/using-patents-as-collateral-can-free-up-funds-for-growing-businesses>

Wild, J. 'Why don't companies with huge compliance departments have anyone looking at patents' (April 2014) *Intellectual Asset Management* at <http://www.iam-magazine.com/blog/Detail.aspx?g=61ae47f6-df41-4f41-8b31-98de9c888157>

Wilkof, N. 'The Nokia-Microsoft Transaction: Further Thoughts on Strategy and Valuation' (11 September 2013) *IP Finance blogspot* at <http://ipfinance.blogspot.co.uk/2013/09/the-nokia-microsoft-transaction-further.html>

Wong, A. 'Banking on Intellectual Property' (9 February 2015) *The Edge Malaysia*, UU4-5.

Yeoh, P. 'Narrative reporting: the UK experience' (2010) *International Journal of Law and Management* Vol. 52, No.3 pp211-231

Yin, R. K. *Case Study Research: Design and Methods* (1984) *Sage Publications*, Newbury Park

Zich, J. 'Business 911: Triage for Trying Times' (June 1994) *Stanford Business School Magazine*

Zipf, G.K. *Human Behavior and the Principle of Least Effort* (1949) Addison-Wesley

Reports

A Guideline for Intellectual Capital Statements – a Key to Knowledge Management (2000) Danish Agency for Trade and Industry, Ministry for Trade and Industry

An Overview of Risk and Disclosure in the Global Pharmaceutical and Life Sciences Industry (April 2012) KPMG at <http://www.kpmg.no/arch/img/9805590.pdf>

Analysing Intellectual Capital Statements (2003a) Danish Ministry of Science Technology

Banking on IP: An Active Response (2014) United Kingdom Intellectual Property Office

Basel Committee on Banking Supervision (2000) Report to G7 Finance Ministers and Central Bank Governors on International Accounting Standards. Basel, <http://www.iasplus.com/resource/basel1.pdf>

Brassell, M. and King, K. *Banking on IP? The role of Intellectual Property and Intangible Assets in Facilitating Business Finance Final Report* (6 November 2013) Independent report commissioned by the UK Intellectual Property Office

‘Considering the effects of accounting standards: An Australian Response to the European Financial Reporting Advisory Group’ (2012) *Institute of Public Accountants*, pp15-16

‘Corporate insolvency in the UK: A Decade of Change’ (2002) *Association of Business Recovery Professionals Tenth Report*, p9

Corporate Patent Strategy, Chapter Four, WIPO at: http://www.wipo.int/export/sites/www/freepublications/en/intproperty/834/wipo_pub_834_ch4.pdf

Copyright and the Value of the Public Domain: An Empirical Assessment (February 2015) Independent Report Commissioned by the UKIPO carried out by CREATE
Dyson, J. *Ingenious Britain Making the UK the Leading High Tech Exporter in Europe: A Report by James Dyson* (March 2010) Commissioned by the UK Conservative Party

Facilitating Interdisciplinary Research (2004) Committee on Facilitating Interdisciplinary Research, Committee on Science, Engineering and Public Policy, Washington: National Academic Press

Federation of Small Businesses Quarterly Report (18 June 2013) Independent report produced by the Centre for Economic and Business Research (CEBR) for the FSB

Creating a financial market for IPR Final report for EU Tender
No3/PP/ENT/CIP/10/A/N02S003, 5 December 2011

FRC Exposure Draft: Guidance on the Strategic Report (August 2013) Financial Reporting Council at <https://www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/Exposure-Draft-Guidance-on-the-Strategic-Report.aspx>

Final Report from the Expert Group on Intellectual Property Valuation (March 2014) European Union at http://ec.europa.eu/research/innovation-union/pdf/Expert_Group_Report_on_Intellectual_Property_Valuation_IP_web_2.pdf

Final Report of the National Commission on the Causes of the Financial and Economic Crisis of in the United States (January 2011) The Financial Crisis Inquiry Commission Pursuant to Public Law 111-21 Washington, DC at <http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>

‘Finance for Small Firms’ (1999) *Bank of England Sixth Report*, p25

Fraser, S. *The Impact of the Financial Crisis of Bank Lending to SMEs: Economic Analysis from the EU Survey of SME Finances* (July 2012) University of Warwick, Report prepared for the Breedon Review of Business Finance for the Department of Business Innovation and Skills at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/34739/12-949-impact-financial-crisis-on-bank-lending-to-smes.pdf

From Ideas to Growth: Helping SMEs get value from their intellectual property (April 2012) UK IPO at <http://www.ipo.gov.uk/business-sme.pdf>

Glaxosmithkline plc Annual Report 2012 at <http://www.gsk.com/media/279963/annual-report-2012.pdf>

Gower, A. *Gowers Review of Intellectual Property* (December 2006) HM Treasury on behalf of the Controller of Her Majesty’s Stationery Office

Guidance on the Strategic Report (June 2014) FRC at <https://www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/Guidance-on-the-Strategic-Report.pdf>

Guide to Evidence for Policy (2011 updated in 2013) UKIPO at <http://webarchive.nationalarchives.gov.uk/20140603093549/http://www.ipo.gov.uk/consult-2011-copyright-evidence.pdf>

Guthrie, J, Petty, R and Ricceri, F. *Intellectual Capital Reporting: Lessons from Hong Kong and Australia* (2007) at <http://icas.org.uk/guthrie/>

Hall, B.H., Helmers, c. von Graevenitz, C. Rosazza-Bondibene, C. *A Study of Patent Thickets* (2013/26) Research commissioned by the UK Intellectual Property Office at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/311234/ipresearch-thickets.pdf

Hargreaves, I. *Digital Opportunity: A Review of IP and Growth* (May 2011) Independent report commissioned by the UK Prime Minister

Haskel J, Goodridge P, Pesole A, Awano G, Franklin M and Kastrinaki Z., *Driving economic growth Innovation, knowledge spending and productivity growth in the UK* (2011) NESTA

Innovation in access to finance for SMEs (February 2014) The Association of Chartered and Certified Accountants

Intellectual Capital Statements – The New Guideline (2003b) Danish Ministry of Science, Technology and Innovation

Intellectual Property and Eco-innovation for small and medium businesses (2011) Research Report conducted by Innogot for Ecomind, co-funded by the European Union under the Interreg IVA 2 Seas Cross-Border Programme 2008-2011

Inventors' Rights (2013) Report of CIPA seminar at: <http://www.cipa.org.uk/pages/Inventors-Rights>

IP Attaché Evaluation Report: Programme Review (October 2014/39) Research commissioned by the UKIPO carried out by Tonic Insight Ltd at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/365195/ip-attache-evaluation-report.pdf

Kingston, W. *Enforcing Small Firms Patent Rights* (2000) Publications Office of the Commission of the European Communities, Luxembourg.

Leveraging Knowledge Assets Reducing Uncertainty for Security Interests in Intellectual Property (2004) Law Commission of Canada (Ottawa) at <http://www.ulcc.ca/en/cls/index.cfm?sec=2&sub=2j>

Louder than Words: Principles and actions for making corporate reports less complex and more relevant (June 2009) FRC at <https://frc.org.uk/getattachment/7d952925-74ea-4deb-b659-e9242b09f2fa/Louder-than-words.aspx>

Options for an EU Instrument for Patent Valorisation (2012) Prepared by the Expert Group on IP Valorisation, European Union at http://ec.europa.eu/enterprise/policies/innovation/files/options-eu-instrument-patent-valorisation_en.pdf

Patent Backlogs and a System of Mutual Recognition (January 2010) Prepared by London Economics for the UK Intellectual Property Office

Patent Pools and Antitrust – A Comparative Analysis (March 2014) Prepared by the WIPO Secretariat

Patent Thickets – An Overview (25 November 2011) UK Intellectual Property Office Informatics Team at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/312540/informatic-thickets.pdf

Report of the Oulton Committee on Patent Litigation (November 1987) Lord Chancellor's Department

Rising to the Challenge: A Review of Narrative Reporting by UK Listed Companies in 2008/2009 Accounting Standards Board at <https://www.frc.org.uk/Our-Work/Publications/ASB/Rising-to-the-Challenge/Rising-to-the-challenge.aspx>

Sanchez, P. Castrillo, R. and Elena, S. *VII The Intellectual Capital Report for Universities* in the ICU Report at

http://www.uam.es/personal_pdi/economicas/palomas/THE%20INTELLECTUAL%20CAPITAL%20REPORT%20FOR%20UNIVERSITIES.pdf

Lomax, S. and Davies, E. *Small and Medium Sized Enterprise (SME) Journey towards raising external finance* (October 2013) A Report by BMG Research commissioned by the UK Department of Business, Innovation & Skills

Pierrakis, Y. and Collins, L. *Banking on Each Other: Peer-to-Peer Lending to Business: Evidence from the Funding Circle* (April 2013) NESTA

Registration of Security Interests: Company Charges and Property other than Land' (2002) *Law Commission Consultation Paper No 164* at paras 2.6-2.19

Small and Medium-Sized Enterprise (SME) Journey towards raising external finance (October 2013) A Report by BMG Research for BIS, Chapter 3

'SME finance: help to match SMEs rejected for finance with alternative lenders' (29 October 2014) Consultation Outcome, Department for Business Innovation & Skills, p.1 at

<https://www.gov.uk/government/consultations/sme-finance-help-to-match-smes-rejected-for-finance-with-alternative-lenders/sme-finance-help-to-match-smes-rejected-for-finance-with-alternative-lenders> [Accessed 20 November 2014]

The Innovation Index: Measuring the UK's Investment in Innovation and the Effects (2009) NESTA at <http://www.nesta.org.uk/library/documents/innovation-index.pdf>

The run on the Rock Fifth Report of Session 2007-2008 House of Commons Treasury Committee (2008) Vol.1, House of Commons London: The Stationer Office Ltd

Phillips, J. (Ed) *The Trillion Dollar Tipping Point AISTEMOS Report* (September 2014) AISTEMOS, London, p 8 at <https://aistemos.com/2014/09/17/report-trillion-dollar-tipping-point-exploiting-untapped-value-patents/>

True and Fair (July 2011) Financial Review Council

UKIPO Facts and Figures 2010 and 2011 Calendar Years

UKIPO Facts and Figures 2012 and 2013 Calendar Years at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318346/Facts_and_Figures.pdf

Wiles, I. *Encouraging Employers to use Human Capital Reporting: A Literature Review of Implementation Options* (2013) UK Commission for Employment and Skills at <https://www.gov.uk/government/publications/human-capital-reporting-literature-review>

WIPO IP Facts and Figure 2013 Economics and Statistics Series at http://www.wipo.int/edocs/pubdocs/en/statistics/943/wipo_pub_943_2013.pdf

Press Releases

‘Bank of England and HM Treasury announce extension to the Funding of Lending Scheme’ (April 2013) News Release available at

<http://www.bankofengland.co.uk/publications/Pages/news/2013/061.aspx>

‘Better and Simpler Company Reporting’ (12 June 2013) BIS at

<https://www.gov.uk/government/news/better-and-simpler-company-reporting>

‘EPO welcomes historic signing of the Unified Patent Court Agreement’ (19 February 2013) *European Patent Office* Press Release

‘New IP Attaché in China will support UK businesses’ (8 December 2011) UKIPO at

<https://www.gov.uk/government/news/new-intellectual-property-attache-in-china-will-support-uk-businesses>

‘New figures published today show that UK business is building success through knowledge and created asset’ (21 March 2014) Department Business, Innovation and Skills at <https://www.gov.uk/government/news/uk-knowledge-investment-continues-to-grow>

Oblack, S. ‘Patent Quality Initiative Launched to Facilitate Better Patents and Fewer Disputes’ (15 October 2014) *The Clearing House* at

http://www.patentqualityinitiative.com/news/press%20releases/2014_oct%2015_pqi%20launch

‘Patent Right Pledge Financing Amounted to 25 Billion Yuan’ (3 March 2014) *IP China News* as reported in English at

http://www.chinaipr.gov.cn/policyarticle/policy/statistics/201403/1801673_1.html

‘Patents: realising and securing value – an international conference in London’ (15 August 2006) UKIPO at <http://www.prnewswire.com/news-releases/patents-realising-and-securing-value---an-international-conference-in-london-69963807.html>

‘Patents reach trillion dollar tipping point’ (17 September 2014) AISTEMOS, London

‘Plans Unveiled to support IP-rich businesses get funding’ (17 October 2013) Department for Business, Innovation & Skills, Intellectual Property Office and the Rt. Hon Dr Vince Cable MP at <https://www.gov.uk/government/news/plans-unveiled-to-support-ip-rich-businesses-get-funding>

‘Report and Recommendations Pursuant to Section 401(c) of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers’, Securities Exchange Commission

‘Silicon Valley Bank’s UK Branch Opens for Business’ (11 June 2012) *Silicon Valley Bank* Press Release at <https://www.svb.com/News/Company-News/Silicon-Valley-Bank%E2%80%99s-UK-Branch-Opens-for-Business/>

‘Singapore Continues Stride Towards Becoming an Intellectual Property Hub of Asia, Launches First-Ever IP Management and Value Lab’ (26 August 2014) *Intellectual Property Office of Singapore* at <http://www.ipos.gov.sg/MediaEvents/Readnews/tabid/873/articleid/284/category/Press%20Releases/parentId/80/year/2014/Default.aspx>

‘Singapore Launches S\$100M Intellectual Property Financing Scheme & First One-Stop IP Service Centre’ (8 April 2014) *Intellectual Property Office of Singapore* at <http://www.ipos.gov.sg/MediaEvents/Readnews/tabid/873/articleid/272/category/Press%20Releases/parentId/80/year/2014/Default.aspx>

‘Singapore ranks tops in Asia for IP Protection’ (12 September 2014) at <http://www.ipos.gov.sg/MediaEvents/Readnews/tabid/873/articleid/288/category/Press%20Releases/parentId/80/year/2014/Default.aspx>

‘Sweeping reforms to IP court save businesses time and money’ (1 Oct 2013) *BIS and UKIPO* at <https://www.gov.uk/government/news/sweeping-reforms-to-ip-court-save-businesses-time-and-money>

‘UK SMEs earmarked for EU grants to help them innovate’ (27 July 2014) European Commission at http://ec.europa.eu/unitedkingdom/press/frontpage/2014/14_77_en.htm

‘WIPO Meeting to Explore IP as a Financing Tool’ (5 February 2009) *WIPO Press Release* MA/2009/47

Legislation

Civil Procedure (Amendment No 7) Rules 2013 (SI 2013/1974)
Companies Act 2006

Companies Act 2006 (Strategic Report and Directors’ Report) Regulations 2013 No. 1970

Corporate Governance Code (September 2014) UK The Financial Reporting Council Limited.

Copyright Designs and Patents Act 1988

County Courts Act 1984

Danish Financial Statements Act (2001)

Directive 2007/47/EC of the European Parliament of the Council, OJ L 247/21

Disclosure Transparency Rules

Enterprise Act 2002

European Patent Convention

Insolvency Act 1986

Intellectual Property Act 2014

Patents Act 1977

Patents Act 2004

Patent Amendment Act 1952

Patent Rules 2007

Senior Courts Act by the Constitutional Reform Act 2005

Small Business, Enterprise and Employment Act 2015

Small Companies and Groups (account and Directors' Report) Regulations 2008

Small Companies (Micro Entities' Accounts) Regulations 2013

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) 1994

Cases

ALK Abello v Meridian [2010] EWPC 014

258/03 *HITACHI/Auction method* [2004] EPOR 548

Balloon Promotions Limited v Wilson (Inspector of Taxes) 3 March 2006 SPC00524

Carlen v Drury (1812) 1 Ves & B 149

Electric & Musical Industries Ltd v Lissen Ltd (1939) 56 RPC 23

Gallagher v Jones (Inspector of Taxes) [1994] Ch 107

HMRC v William Grant & Sons Distillers Limited [2007] UKHL 15

Hospital Products Ltd v US Surgical Corporation (1984) CLR 156

Hutton v West Cork Railway (1883) 23 Ch D 654

Kelly & Chiu v GE Healthcare Ltd [2009] EWHC 191 (Pat)

McDonald v Graham [1994] RPC 407

Minsterstone Ltd v Be Modern Ltd [2002] FSR 53

National Guild of Removers & Storers Ltd v Christopher Silveria [2010] EWPC 015

Odeon Associated Theatres v Jones (Inspector of Taxes) [1971] 1 WLR 442

Packer v Packer [1954] 2 All ER 127

Percival v Wright [1902] 2 Ch 421

Re Brightlife Ltd [1987] Ch 200

SmithKline Beecham Plc's (Paroxetine Methanesulfonate) Patent [2006] RPC 10

Suh v Ryu [2012] EWPC 20

T 931/95 *PBS Partnership/Controlling Pension Benefits System* [2002] EPOR 522 and T

York Building Co v MacKenzie (1795) 3 Pat 378

Your Response Limited v Datateam Business Media Limited [2014] EWCA 281

International

Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) (1994)

Austria University Act 2002

Danish Financial Statements Act 2001

German Commercial Code as translated by A.F. Schuster, Barrister of the Inner Temple at http://www.archive.org/stream/germancommercial00germuoft/germancommercial00germuoft_djvu.txt

Horizon2020 SME Instrument

Personal Property Securities Act (Cth) 2009

United States Bankruptcy Code

Websites

www.amazon.com

<http://www.biginnovationcentre.com/entrepreneurial-finance-hub>

<http://blog.crowdfunder.co.uk/2010/11/08/147/>

<http://www.cipfa.org/about-cipfa>

<http://www.collieripmanagement.com/news/ip-finance-toolkit>

http://ec.europa.eu/research/horizon2020/index_en.cfm

<http://www.doingbusiness.org/rankings>

www.edmpublications.com

www.epo.org

www.fasb.org

www.faveo.co.uk

www.fiveoffice.org

www.forbes.com

www.frc.org.uk

http://www.fsa.gov.uk/consumerinformation/product_news/saving_investments/crowdfundin
g

www.grameen.com

Global Agenda Council on Emerging Technologies blog available at
<http://forumblog.org/2012/02/the-2012-top-10-emerging-technologies/>

www.geox.com

www.geox.biz

<https://www.gov.uk/business-finance-explained/loans>

http://www.hm-treasury.gov.uk/patent_box.htm

www.iasplus.com

www.ifrs.com

www.ilf-frankfurt.de

www.imf.org

www.independent.co.uk

ipfinance.blogspot.co.uk

www.ipfinance-institute.com

www.ipkat.com

<https://twitter.com/Ipkat>

ipkitten.blogspot.co.uk

www.ipos.gov.sg

www.justice.gov.uk

www.kickstarter.com

www.law.qmul.ac.uk

<http://lexicon.ft.com>

<http://www.londonstockexchange.com/specialist-issuers/debts-bonds/how-to-issue/listingcosts/debt-price-list.pdf>

www.qfinance.com

<http://www.santanderbreakthrough.co.uk/advice/finance/funding-options-mezzanine-finance>

<http://securedtransactionslawreformproject.org>

<http://www.svb.com/uk/>

<http://www.wipo.int/ipadvantage/en/details.jsp?id=2689>

[http://www.ii-a.fr/intangibles/international accountningh.htm](http://www.ii-a.fr/intangibles/international_accounting.htm)

www.wipo-int/meetings/en/details

<http://www.cdb.com.cn/web>