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The Determinants of Loan Loss Provisions in Islamic Banking

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MSc Finance and Investment
The Determinants of Loan Loss Provisions in Islamic Banking

by

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2013

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Abstract

Only recently have regulators and academics started to pay special attention to alternative methods of banking. Islamic banks offer a unique environment considering they are fundamentally different due to the fact they follow Shariah law. The purpose of this research is to examine the key determinants behind loan loss provisions in the Islamic banking industry. The study then compares the results to the determinants of conventional banks and explores the reasons behind these underlying differences in provisioning behaviour. This study uses a sample of 57 Islamic banks, operating in 15 countries over the period of 2002-2012. It utilises two main models: an Ordinary Least Squares regression model and a dynamic Generalised Method of Moments Arellano-Bond estimator. The main determinants are found to be tier 1 capital, non-performing loans and size. The results confirm that Islamic banks are prudent and not procyclical. They also confirm that the banks do not income-smooth except when they suffer negative earnings, acting as a countercyclical tool. These findings reveal that Islamic banks’ provisioning behaviour is very different to conventional banks across the world allowing them to avoid magnifying the impact of the economic cycle on their income and capital.

Keywords: Islamic banks, bank regulation, loan loss provisions, income-smoothing, procyclical, dynamic, prudent, Basel
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1. Introduction
The most recent financial crisis has brought about renewed attention and appreciation of alternative ways of banking, which are less short term and profit driven. Islamic banking is a prominent alternative system of financial intermediation that largely avoided the unrest.

Loan loss provisions are a relatively large accrual for banks and therefore have a “significant impact on banks’ earnings and regulatory capital” (Ahmed, Takeda and Thomas, 1999). In theory, the purpose of loan loss provisions is to adjust banks’ loan loss reserves to reflect both past and expected future losses on their loan portfolios. In practice however, managers can use them as a tool for various other purposes, such as income-smoothing and signalling private information about future prospects.

Many studies have investigated loan loss provisions for conventional commercial banks; however, there remains a large gap with regards to research on Islamic banking loan loss provisions and the theoretical and empirical explanations behind the sector’s attitude towards loan loss provisions. More academic attention is certainly worthwhile to build on previous work by various respected researchers such as Taktak et al (2010), Farook et al (2010) and Misman and Ahmad (2011). This paper’s methodology and time period covered is unique in Islamic banking loan loss provision research, adding significant value to the understanding of Islamic banks amongst the academic community. This is especially true considering there are currently more than “300 Islamic financial institutions spread over 51 countries” (Solé, 2007) and bearing in mind Islamic banking’s exceptional growth rate of an average 20% in the 18 months leading to March 2012, compared to 9% for conventional banks in the Middle East region (Hall, 2012) and 5.5% for the top 1000 banks worldwide (Capgemini, 2012). According to Ernst and Young (2012), Islamic banking assets are expected to “grow beyond the milestone of $2 trillion by 2014”. This phenomenal growth and the fact the segment is relatively new, seeing it was first introduced to the middle east just over forty years ago, justifies doing further research into the Islamic banking industry to better understand how they
handle their loan loss provisions and if they handle it in a different way to conventional, non-Islamic banks.

The sector’s reach and product offerings, such as its expansion into Europe and the offering of Shariah compliant bonds known as Sukuks, have widened considerably since the inception of Islamic banking. Islamic banks are heavily concentrated in the Middle East and South-East Asia. The Islamic Republic of Iran, for example, has transformed its entire banking system to be Shariah compliant (Rokh, 2008).

Islamic banking is based on the Islamic principles, generally referred to as Shariah. Islam is not only concerned with the relationship between man and God, but consists of “a system of beliefs, justice, equity, fairness and morality” (Kettell, 2010), which underpins the Islamic way of life. These beliefs are used together and form the basis for the creation of Islamic financial products, in addition to setting the regulation overseeing Islamic banks and their management.

To accomplish Shariah compliant banking, financial products and services must, in particular, prohibit the payment and receipt of interest, known as Riba. Islamic banks therefore use “profit-and-loss sharing arrangements, purchase and resale of goods and services, and the provision of services for fees” (Kettell, 2010, p. viii), instead of loans. Conventional banks on the other hand are free to use interest in designing financial products and therefore do not need to purchase goods and services on behalf of their customer; instead, providing them the funds directly. The Islamic banking method is seen as more sustainable due to its emphasis on purchasing assets rather than relying on debt funding (Taktak et al, 2010).

Prior studies on loan loss provisions have documented that conventional banks were procyclical, postponing provisions when faced with favourable economic conditions until negative conditions set in. Islamic banks on the other hand were found to practise dynamic provisioning, avoid income-smoothing and were not deemed procyclical.

1.1. Objectives
The first set of objectives of this dissertation are to: investigate the basic principles behind Islamic banking and how the industry is regulated, synthesise how
countries with a large presence in Islamic banking were impacted by the financial crisis and investigate how various Islamic countries regulate domestic Islamic banks. The second set of objectives are to: critically evaluate, using existing literature, how loan loss provisions are applied in both Islamic and conventional banking; critically analyse using empirical models the key determinants behind Islamic banking’s loan loss provisions and subsequently, compare and contrast the results to how provisions are influenced in conventional banking.

1.2. Scope of the dissertation
This dissertation’s main goal is to find out how Islamic banks determine and make use of loan loss provisions. For example, do they use loan loss provisions to income-smooth? Are their loan loss provisions procyclical? Are the bank managers incentivised to use them in one way or another, especially with regards to discretionary provisions? Its aim is not to research whether Islamic banks are indeed ‘Islamic’ and whether they follow the Muslim holy book, the Quran, nor will it seek to identify if Islamic banking is more sustainable or efficient than conventional banking.

1.3. Overview of the methodology
The empirical analysis will first be conducted by running an Ordinary Least Squares (OLS) regression followed by a separate Arellano-Bond estimation on an unbalanced panel, allowing the inclusion of a larger set of banks considering many banks are likely to have some missing data points. The data set will include pre-financial crisis, during the financial crisis and post-crisis years to allow analysis of loan loss provisions during various economic and market conditions. OLS estimation is rendered inconsistent when including lags of the dependent variable. Arellano-Bond estimation, a Generalised Method of Moments (GMM) difference estimator, on the other hand overcomes this problem and achieves consistent results. This procedure “estimates the specific dynamic model in first-differences to solve the estimation problem raised by the potential presence of unobserved individual effects”. In addition, it gives consistent estimates “under the assumption that the error term is not serially correlated and the explanatory variables are exogenous” (Laeven, 2001, Packer and Zhu, 2012). It has been used before for empirical
analysis on conventional banking loan loss provisions and appears to have achieved reliable results.

1.4. Structure
This paper will start by introducing Islamic banking, followed by highlighting key regulations that impact both loan loss provisions and managerial behavior towards provisioning. It will then provide the reader with a world economic overview and how notable Islamic countries and their Islamic banks were impacted by the financial crisis. Subsequently, the key theories and existing academic work will be discussed, followed by an explanation of the data and methodology process that will be employed to analyze and establish the key determinants. The quantitative models will then be run and key empirical findings will be explained, compared and contrasted to both existing academic work on conventional banks and Islamic banks. Finally, the results from the findings from the literature review and the empirical analysis will be drawn together to conclude, highlighting variables that are the key determinants behind loan loss provisioning and the implication of them for Islamic banking.
2. Islamic Banking and Regulation

Islamic financial institutions are set apart from the conventional institutions by the fact that they have religious links and objectives, based on the Holy Quran’s principles. One of the key fundamental differences is that Islamic banks provide products and services to their customers free from interest; instead, Islamic banks follow a profit-and-loss sharing (PLS) principle. The PLS principle involves the borrower of funds forming a partnership with the institution, whereby profits and losses out of his/her enterprise are shared at a fixed ratio.

The largest Islamic banks are located in countries that are part of the Gulf Cooperation Council (GCC), which consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates (UAE). The GCC, in addition to Jordan and Malaysia, account for 80% of the Islamic banking industry (IMF Survery, 2010). Several factors, such as strong demand for Shariah-compliant products and the strengthening of the legal and regulatory framework in these countries, have led to strong growth in the sector. Table 1 highlights Islamic banking’s growth in assets (in percentage) in the GCC in addition to Jordan, Turkey and Malaysia.

<table>
<thead>
<tr>
<th>Market Share in 2008</th>
<th>Islamic banking asset growth rate</th>
<th>Overall banking asset growth rate</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>35.0</td>
<td>33.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Bahrain</td>
<td>29.9</td>
<td>37.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Kuwait</td>
<td>29.0</td>
<td>28.3</td>
<td>19.0</td>
</tr>
<tr>
<td>UAE</td>
<td>13.5</td>
<td>59.8</td>
<td>38.1</td>
</tr>
<tr>
<td>Qatar</td>
<td>11.5</td>
<td>65.8</td>
<td>38.1</td>
</tr>
<tr>
<td>GCC Average</td>
<td>23.8</td>
<td>45.0</td>
<td>24.8</td>
</tr>
<tr>
<td>Jordan</td>
<td>10.3</td>
<td>20.6</td>
<td>11.2</td>
</tr>
<tr>
<td>Turkey</td>
<td>3.5</td>
<td>41.0</td>
<td>19.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>17.4</td>
<td>20.0</td>
<td>14.0</td>
</tr>
</tbody>
</table>
2.1. Islamic banking regulation

Islamic banking’s greater market discipline cannot eliminate the necessity for prudential supervision. Regulation is vital in order to manage and reduce risks to the soundness of the banking system, just as with conventional banking. Insolvency risks cannot be ruled out, particularly given the “close link of Islamic finance with the real economic sector through various financing contracts” (Aziz, 2013). The banks must play an active role in enhancing and developing the economy they are part of. A strong banking system can assist the economy in benefiting from the “ongoing globalization process and the liberalization of capital markets” (Errico and Farahbaksh, 1998). This is especially relevant in developing countries, which is where the majority of the Islamic banking principles are followed. The banks are usually “major (or the sole) players in the domestic financial markets” (Errico and Farahbaksh, 1998), therefore an appropriate regulatory framework, such as the Islamic Financial Services Board (IFSB), is vital in order to reinforce the Islamic banking’s operating environment and their market discipline.

The IFSB has introduced prudential standards for the Islamic financial services industry in “all key areas of capital adequacy, risk management, corporate governance and Shariah governance” (Aziz, 2013). This is seen as crucial in order to “promote more consistent regulatory and supervisory frameworks across borders” (Aziz, 2013). The standards are aligned with the key principles and standards adopted by the Basel Committee, which serves to reduce the opportunity for regulatory arbitrage and contribute towards global financial stability.

The financial reporting rules set by the International Accounting Standards and the Generally Accepted Accounting Principles (GAAP), do not accurately reveal the true performance of Islamic banks. While there are several factors why Islamic banks do follow the Basel II regulations, such as them “gaining international recognition” (Hassan and Dicle, 2005), they have a wide range of operations that are not reflected in these standards, for instance the PLS accounts and Mudaraba (a sales contract used to finance projects) transactions. Risks in PLS accounts are shared between the bank and the account holder, which is not taken into account in conventional accounting standards. On the other hand, Mudaraba transactions
cannot be classified “until the underlying contract expires” (Sundararajan and Errico, 2002), as a default cannot be recognized until the investment project has failed to deliver what was expected, for example a loss or lower than expected return.

In 1991 the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) was established to overcome the problems of conventional banking accounting regulations for Islamic banks. The AAOIFI “plays a crucial role in pursuing the harmonization of Shariah-based rulings across jurisdictions” (Solé, 2007). The unique natures of the PLS accounts led the AAOIFI to recommend all Islamic banks dynamically provision, enabling Islamic banks “to anticipate the expected credit losses rather than the actual losses” (Quttainah et al, 2013). Moreover, to ensure compliance with Shariah laws, many national regulators require Islamic banks to have an independent board, known as the Shariah Supervisory Board (SSB).

The SSBs delegate to bank managers the responsibility of executing approved Islamic products and services, as well as ensuring compliance to their religious guidelines. SSBs are considered a reliable source in promoting Islamic banks and hence attracting new customers. They play a crucial role in monitoring and controlling the performance of the banks, overlapping with the board of directors. Quttainah et al (2013) found SSB members that had a high reputation were able to constrain banks from smoothing. They found the SSB had to have the “right structure and the right people”. The SSB auditors’ quality and reputation were “crucial and critical” in limiting earnings management. Simply having an SSB in itself was found to not be effective in deterring earnings management.

The PLS accounts are a great concern for Islamic banking regulators as it shifts the banks’ risk to the asset side. Having adequate capital and loan loss provisions, as well as appropriate pricing and control of risks, are therefore vital in ensuring Islamic banks remain sound. Loan loss provisions “lessen the inherent greater potential for moral hazard in the operation of PLS” (Sundararajan and Errico, 2002). Additionally, having adequate levels of capital ensures the banks are able to
attract demand deposits, which of course are never remunerated, but “may well share the same risks as investment deposits” (Sundararajan and Errico, 2002).

Capital and provisions protect investment deposits from excessive losses in the event the banks’ earnings are hit. This avoids a flight to safety that could trigger a liquidity crisis against which Islamic banks may be less equipped to handle than conventional banks, due to their inability pay interest when borrowing capital. The AAOIFI “requires Islamic banks to report these deposits on their balance sheets” rather than off-balance sheet, enabling Islamic banks to fulfil their capital adequacy requirements (Chapra and Khan, 2000). Considering investment deposits share similar risks to shareholders, the AAOIFI produced a separate capital adequacy ratio to take this risk into account:

$$\text{Total capital}$$

$$\frac{(\text{Total average risk} - \text{weighted assets financed by bank capital and current accounts} + 50\% \text{ of total average risk} - \text{weighted assets financed by investment deposits})}{\text{Total average risk}}$$

The majority of countries have opted to run Islamic banks alongside conventional banks to enable them to continue to take advantage of conventional financial products that have yet to be introduced and regulated in Islamic finance. However, Iran, Sudan and Pakistan have transitioned into a fully Islamic financial system, completely abolishing interest-based banking operations (Solé, 2007, Chong & Liu, 2009).

### 2.2. Loan Loss Provisions and Basel
Loan loss provisions are widely used by both Islamic and conventional bank managers when managing their lending activities’ risk exposures. Provisions are anticipated losses that occur from lending and financing activities (Anandarajan, Hasan and McCarthy, 2007). All commercial banks, whether Islamic or conventional, “must comply with the risk weighted capital adequacy framework in using loan loss provisions as tools for managing risks” (Misman and Ahmad, 2011). A riskier asset will therefore have a higher provisioning requirement. Table 2 presents the Basel framework that each country with a large Islamic banking industry has currently fully adopted.
In 1988, the Basel Committee introduced the risk weighted capital adequacy framework based on international standards of capital adequacy in what is referred to as Basel I. Subsequently in 1990, the capital adequacy framework was “amended and all banks are now required to maintain a minimum total capital of 8% from risk weighted assets (RWA) of the bank” (Misman and Ahmad, 2011).

A bank’s total capital is split into tier 1 (core) and tier 2 (supplementary) capital, whereby tier 1 capital “must be at least 4%” (Basle, 1988, p. 14) of RWA and 3% of total assets and tier 2 must not exceed the amount of tier 1 (Basle, 1988, p. 17). This implies that at least 50% of the amount of total capital must be tier 1, such as common stock or disclosed reserves. Loan loss reserves no longer counted as a component of tier 1 capital but rather included as part of tier 2 capital (up to a maximum of 1.25% of RWA). Tier 2 capital also included undisclosed reserves, hybrid (debt/equity) capital instruments and subordinated debt (Basle, 1988, p. 17). Islamic banks do not hold these types of tier 2 capital as they are linked to the payment of interest, which is forbidden; therefore the banks focus on tier 1 capital. Interestingly, Basel III has increased the importance of tier 1 capital, following the footsteps of Islamic banking.
Laeven and Majnoni (2003) have argued that since 1991 “…from the perspective of compliance with regulatory capital requirements”, it became much more effective for banks to “allocate income to retained earnings (entirely included in tier 1 capital) than to loan loss reserves (only partially included in Tier 2 capital)”. If a bank increased its loan loss reserves, the effect is “to increase tier 2 capital while reducing retained earnings and tier 1 capital” (Balla and Rose, 2011).

A bank’s loan loss reserve account is a “contra-asset account”, used to reduce the value of total loans on the bank’s balance sheet by an amount that is based on the bank manager’s forecasts of losses (Balla and Rose, 2011). Loan loss reserves are a bank’s first line of defence against actual loan losses (Hatfield and Lancaster, 2000). The amount of losses is based on the most probable future state of the world. Considering loan loss provisions are a relatively large accrual for commercial banks, they have a significant effect on earnings and regulatory capital, causing tension between accounting priorities and supervisory priorities.

Accounting priorities emphasise the “objectivity and comparability of financial statements” (Balla and Rose, 2011) to allow for bank monitoring. The Financial Accounting Standards Board states that an inherent credit loss should be recognised only once an event triggers a likely loss that “can be reasonably estimated” (Balla and Rose, 2011). On the other hand, supervisory priorities focus on the ability of banks to maintain solvency, especially during changing business environments. Bank supervisors view adequate loan loss provisions as part of the banking system’s safety and soundness. A deficit in loan loss reserves implies that the bank’s capital ratios do not portray the banks’ true ability to absorb unexpected losses. As a result, bank managers must incorporate their future expectations of losses due to changing economic conditions, “even if no event has yet occurred to indicate specific estimable losses” (Balla and Rose, 2011). These two contrasting aims can therefore be split between objective backward-looking historical data and subjective forward-looking expectations, which reflect a trade-off between transparency and the safety and soundness of the banking system.

Loan loss provisions have been “widely employed by bank managers in managing risk on capital and earnings” (Misman and Ahmad, 2011, p. 95) in both Islamic and
conventional banks. The banks can increase their reserves by increasing loan loss provisions in a financially strong year. Zoubi and Al-Khazali (2007) explain that there are five objectives of using loan loss provisions: income smoothing, stock pricing, management bonus, provide signals about future losses and earnings, and to comply with legal requirements. Furthermore, they found that there are several determining factors that influence managerial decisions regarding loan loss provisions. These include non-performing loans (NPL), loan write-offs, past and present earnings, debt to equity ratio, capital adequacy ratio, loans-to-deposit ratio and the size of the bank.

Generally, loan loss provisions can be used to cover losses from loan activities, meet regulatory capital requirements, and more importantly, to manage present and future income. Banks split loan losses into various categories based on their payment status, for example the loans can be split between current, 30 days past due, 60 days past due, 90 days past due. In addition, banks classify them based on the severity of delinquency that can vary by asset class. Assessments are then performed to decide whether a provision should be made on any of the loans, if a loss is probable and predictable.

**2.3. Regulation in the United Arab Emirates**

On the 17th of December 2012, the UAE central bank announced that it is delaying new regulatory requirements until further notice. The bank had expected national banks to meet certain lending and liquidity ratios to meet Basel III requirements in addition to being able to better withstand future market disruptions. The central bank however noticed that banks had significantly reduced their lending to government entities in order for them to meet these new requirements by the January 1st 2013 deadline (Failaka, 2013). It opted to provide the banks with further time to get to grips with these requirements. Due to the recent property bubble, which burst during the financial crisis, Dubai in particular had a large problem with non-performing loans.

Banks in the UAE had been repositioning themselves due to the higher costs of complying with higher capital requirements introduced by Basel III. The time extension may allow UAE banks to shift their focus back to lending and investing in
the region, but this is yet to take effect (Hunter, 2013). Since June 2010, the banks have had tier 1 capital and total capital requirements of 8% and 12%, respectively, which “are substantially higher than the 6% and 8% set by Basel III and expected to be in place by 2019” (Hunter, 2013). These figures demonstrate the banks’ willingness to hold on to capital and their reluctance to employ their capital by lending.

In 2010, the central bank announced changes to banking loan classifications and provisions to match international standards, as shown in Table 3. UAE banks will need to set loan loss provisions for personal loans which are in arrears of “90, 120 and 180 days, of at least 25%, 50% and 100% of the loan, respectively” (Jarvis, 2011). This applies to personal loans, car loans, credit cards and residential mortgages. No provisions are needed for loans in which borrowers have provided collateral to the bank and the net value exceeds the loan amount. If a defaulted borrower proves able to continue paying the loan, the loan category can be revised although it must be revisited every month for 1 year. The regulator now requires provisions to be booked every quarter rather than at the end of the year (Salama, 2010).

**Table 3: United Arab Emirates’ loan classifications and provision requirements (Jarvis, 2011)**

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Some loss due to adverse factors to hinder repayment or weakness of security</td>
<td>25</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Full recovery doubtful, financial position not sound</td>
<td>50</td>
</tr>
<tr>
<td>Loss loans</td>
<td>Exhausted all courses of action, may recover nothing</td>
<td>100</td>
</tr>
</tbody>
</table>
2.4. Regulation in Kuwait

The Central Bank of Kuwait benefits from only having to supervise 10 local banks and 8 foreign bank branches. This GCC member state has focused on improving its regulation to meet international standards, to curb fast lending growth and slow down inflation. It recently raised its capital adequacy ratio requirement from 10% to 12% and announced that the government will guarantee 100% of customer deposits in local banks (Singh, 2009). In terms of accounting, Kuwaiti banks follow the International Financial Reporting Standards except for point number 39, which relates to collective provisioning. Instead, the regulator has replaced this “specific requirement for collective provisioning for a minimum general provision” (Singh, 2009). Furthermore, the banks have adopted Basel II in 2005, which has enhanced the level of reporting well above the regional standards.
### Table 4: Kuwait’s loan classifications and provision requirements (Central Bank of Kuwait, 1996)

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Mention</td>
<td>Debt subject to any of the irregular conditions for a period not exceeding 90 days, or to any of the other considerations associated with the client's position.</td>
<td>Up to management’s discretion</td>
</tr>
<tr>
<td>Sub-standard loans</td>
<td>In case the debtor is in default of paying any of the overdue instalments for a period of 3 months and less than 6 months.</td>
<td>20</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>In case the debtor is in default of paying any of the overdue instalments for a period of 6 months and less than 12 months.</td>
<td>50</td>
</tr>
<tr>
<td>Bad</td>
<td>In case the debtor is in default of paying any of the overdue instalments for a period of 12 months and more. Clients, against whom legal measures and actions have been taken, shall also be classified under this category.</td>
<td>100</td>
</tr>
</tbody>
</table>

#### 2.5. Regulation in Bahrain

Bahrain is leading the Islamic finance sector with a regulatory regime that is “industry-specific, transparent, and maintained to a standard that is comparable to the best of international practices” (Al-Khalifa, 2011). In fact, the AAOIFI which most Islamic banks around the world follow was set up in Bahrain.
Table 5: Central Bank of Bahrain’s loan classifications and provision requirements (World Bank, 2000)

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Loans that are 30-60 days past due.</td>
<td>20</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Loans that are 60-90 days past due.</td>
<td>50</td>
</tr>
<tr>
<td>Bad</td>
<td>Loans that are over 90 days past due.</td>
<td>100</td>
</tr>
</tbody>
</table>

2.6. Regulation in Saudi Arabia

Loan loss provisions in Saudi Arabia are completely down to the management’s discretion, depending on “their reviews of each loan’s performance, regardless of how the customer’s other loans are rated” (World Bank, 2002). The country’s regulatory body does not require small loans to be classified, nor do provisions on them need to be made on an individual basis but rather “allow[s] them to be assessed on a pooled basis” (World Bank, 2002). Moreover, there are no limits on specific and general provisions. Non-performing loans must be disclosed quarterly with external auditors legally required to assess the adequacy of loan loss provisions.

Loan classifications in Qatar and Malaysia are shown in Table 17 and Table 18 in the appendix.
3. World Economy Overview

During the first decade of the twenty-first century the world economy first experienced strong stable economic growth followed by a sharp contraction during the 2008/09 global financial crisis. The world’s economic output, measured in Gross Domestic Product (GDP), grew at a rate of approximately 3.25% before the financial crisis, falling to just under 2% during the period of 2008-2012 (Trading Economics, 2013). Reckless sub-prime lending by financial institutions in the United States, the world’s largest economy, originated the financial crisis that impacted countries worldwide.

In Europe, several countries that have adopted the Euro have yet to escape the aftermath. Their inability to print money freely to devalue their currency to boost exports and increase their competitiveness, in addition to their inability to expand their fiscal policies due to their mounting sovereign debt levels has led to deep recessions. The Islamic region, particularly the Middle East and North Africa, had witnessed above world-average growth of 4.4% during the pre-crisis period, falling slightly to an average of 4.2% during and post crisis, still outstripping the rest of the world (Trading Economics, 2013). The sum of the 57 Islamic countries’ GDP reached $5.7 trillion, making up 8.3% of global GDP (IINA, 2012).

The global financial crisis resulted in world output experiencing “its sharpest drop since the Great Depression of the 1930s, with most economies contracting in late 2008 and early 2009” (Cecchetti, Kohler and Upper, 2009), deeply affecting investor and consumer confidence. Several notable financial institutions collapsed, such as Lehman Brothers, which at the time was the fourth-largest US investment bank and the “biggest in [the] history of bank failure” (Katie, 2012, p. 8). Many other financial institutions required bailouts from their national governments such as Citigroup ($50 billion), Bank of America ($45 billion), BNP Paribas (€5.1 billion) and Société Générale (€3.4 billion). The UK government spent £50 billion to part-nationalise the country’s biggest banks to “stop the financial system melting down” (Wearden, 2008). In total, eight British banks took part in the government’s scheme. Birmingham-based Islamic Bank of Britain also required a bailout due to
the downturn. The Islamic bank received a £20m capital injection by Qatar International Islamic Bank (IBB, 2010).

Evidently, bank failures are commonplace and happen in many countries across the world. Each country has certainly witnessed one of its banks fail at one point or another (Katie, 2012, p. 1). Furthermore, the costs that accompany a bank failure are substantial, as highlighted by the examples provided in Figure 1.

![Figure 1: Recent Bank Bailouts (NY Times, 2009, NAO, 2013)](image)

3.1. Islamic Banking and the Financial Crisis

The Islamic banking sector has largely avoided being a victim of the global financial crisis that has brought down some of the largest and most reknown banks around the world. It has remained “on the sidelines of the unrest” (Kettell, 2010, p. vii). A key factor that has helped Islamic banks escape the financial crisis’ full impact is the fact that the Islamic banking model does not allow investments in complex derivatives, many of which ended up being toxic assets whose value fell significantly and whose markets stopped functioning.

A recent IMF Survey (2010) compared the performance of Islamic banks to conventional banks globally and found that the former performed better, given the “large losses incurred by conventional banks in Europe and the US as a result of the crisis”. On average, Islamic banks “showed stronger resilience” (IMF Survey,
The survey then compared the two forms of banking in the GCC in addition to Jordan and Malaysia. It found that Islamic banks did perform better in terms of profitability in 2008, although conventional banks ended up faring better in 2009 once the crisis hit the real economy.

Al-Atrash & Hardy (2010) found that factors relating to the Islamic banking business model “helped limit the adverse impact on profitability in 2008, while weaknesses in risk management practices in some Islamic banks led to a larger decline in profitability in 2009 compared to conventional banks”. In addition, Islamic banks’ credit and asset growth during the crisis performed better than their conventional counterparts, “contributing to financial and economic stability”. Beck et al (2010), who compared the two types of banks and their performances across many countries, concluded that although both were impacted during the crisis, Islamic banks had higher capitalisation and liquidity reserves, allowing them to withstand better. Parashar and Venkatesh (2010) confirmed these findings and added that while “Islamic banks’ CAR [Capital Adequacy Ratio] showed downward trend, still its average was higher than conventional [banks]”.

In terms of growth in credit and assets, Islamic banks continued to be higher in all countries, with the UAE being an exception. Furthermore, the majority of Islamic banks’ overall risk assessment had been “better than or similar” to conventional banks. This characteristic, in addition to their lower leverage and higher solvency resulted in them showing “stronger resilience” (on average) during the crisis, allowing them to “meet a relatively stronger demand for credit and maintain stable external ratings”. Sir Andrew Cahn (2009), the Chief Executive Officer of UK Trade & Investment, also noted Islamic finance’s strength stating, ”Though no sector is immune to the global financial crisis, Islamic finance has shown great resilience”.

These findings distinguish Islamic and conventional banks and their ability to manage a crisis, like the one experienced in 2007-2009, and has drawn ever more attention to their business strategies.
3.2. United Arab Emirates’ Banking Sector

Within the UAE, Dubai was the hardest hit by the global economic downturn due to its booming real estate market. The UAE central bank had to provide $13.61 billion in support to its banking sector during the financial crisis. The Finance Ministry had to step in with a further $20 billion in emergency loans and a 3-year blanket bank deposit guarantee (The National, 2011). The regulator was forced to strengthen the banking sector with more stringent requirements, such as higher down payments on car loans and consumer loans to reduce reliance on the central bank as a lender of last resort. Asset quality in the country “deteriorated significantly” in 2009 and the trend continued in 2010, with an “average NPL to gross loans ratio of banks increasing to 4.3% in 2009 from 1.7% at end-2008” (Moukahal, 2011).

The country as a whole has since fully recovered from the crisis with non-oil activities contributing 41.5% to GDP and financial services growing 13.6% in 2011 (Statistics Centre, 2012). The Central Bank of the UAE estimates non-performing loans “may finally have peaked at 8.7% in December 2012” (IMF, 2013). Further, the regulator believes the banking system could “absorb even a significant increase in non-performing loans” (IMF, 2013).

In 2010, the central bank had stated that short-term liquidity in Islamic banks remained an issue that had to be addressed (Sambidge, 2011). Miniaoui and Gohou (2011) found that in the United Arab Emirates, which has a remarkably high number of banks (23 in 2010), conventional banks performed better than Islamic banks unlike the rest of the GCC. Notably, since the crisis they seem to “close the difference” although explanations for why this gap remains unclear.
3.3. Kuwait’s Banking Sector

Kuwait is considered to be one of the pioneer countries in Islamic banking activities. Islamic banking has grown from having $63.2 billion in assets (32.1% of total banking assets) in 2008 to $78.6 billion (37.7%) by the end of 2012. Deposits grew from 25% to 35.9% during the same time frame. This tremendous level of growth can be attributed to the country’s confidence that this industry is a viable alternative to the usual methods of banking. The Governor of the Central Bank of Kuwait states that these figures reflect “the proven successes of the Islamic financial industry in Kuwait”, with the banks becoming “a cornerstone in the Kuwaiti economy and a significant resource for banking and financial activity in the state of Kuwait” (Al-Hashel, 2013). These statistics highlight the fact that Islamic banks continued to increase their assets, attract depositors and their financing by more than $10 billion both during and after the crisis.

The major conventional banks in the country are acquiring stakes in Islamic banks and opening Islamic windows to allow them to better compete with the rising prominence of Islamic finance in the country. The real estate sector continues to be a drag on profitability due to the higher provisioning on real estate loans. This has forced many European banks out of the country and the wider GCC region (Karthikeyan, 2013). Due to loan growth in the country being highly correlated to government spending, it is also perceived as a problem.

The economy, which is heavily reliant on its oil sector, was heavily hit by the financial crisis when oil prices dropped, however has since recovered. The finance sector represents 14% of GDP relative to the oil sectors 49%, as illustrated by Figure 2. The downturn “negatively affected the financial system and government’s fiscal position” (Arab Times, 2013). The government was forced to react and as such boosted its fiscal spending to $22.5 billion, accompanied by the “approval of a four-year development plan” worth $104 billion (Arab Times, 2013). In addition, the Central Bank significantly cut the discount rate to help support the economy.
Figure 2: Kuwait’s GDP by sector in 2010 (Central Bank of Kuwait, 2011)
3.4. Bahrain’s Banking Sector

Bahrain is recognised internationally as one of the more diversified economies in the region, with its financial sector being the second largest contributor to GDP, as depicted in Figure 3. According to the Central Bank of Bahrain (2013) the country has 24 Islamic banks with assets of $25.8 billion, out of 112 financial institutions with assets of $190.2 billion. It was the first to place emphasis on Islamic Banking and “to nurture the concepts, rules and common standards of Shariah compliance” (Bahrain, 2013). During the crisis, Islamic banks in the country were able to withstand the downturn “but the effect comes after the crisis period” (Hidayat and Abduh, 2012). For example the oldest and one of the largest Islamic banks in the country, Bahrain Islamic bank, continued to report losses even by the end of 2012 after having to raise its provisions by $108 million in 2011 to protect itself from “difficult local and international market and economic challenges” (BIB, 2013).

![Figure 3: Bahrain’s GDP by sector in 2012 (CIO, 2013)](image)
4. Literature Review

4.1. Income Smoothing

In 1981, Scheiner first explored income smoothing, also known as earnings management, in the United States. It refers to a manager’s ability to make decisions on financial reporting and “structuring of transactions” (Taktak, Zouari and Boudriga, 2010, p. 96) and is considered one of the most significant factors that influence banks in making decisions on loan loss provisions. Bank managers estimate loan loss provisions to reflect changes in expected future loan losses, providing them with wide leeway for discretion. They are subject to “significant reputation and regulatory pressures to ensure the smoothness of earnings” (Farook, Hassan and Clinch, 2010). Significantly, managerial income and bonuses are linked with performance targets, further motivating stable earnings growth trends.

Loan loss provisioning is “a key aspect of bank financial reporting for regulators and outside investors interested in monitoring risk-taking behaviour” (Bushman and Williams, 2007: 31). The US Securities and Exchange Commission (SEC) and bank regulatory agencies have both paid a lot of attention to loan loss provisions due to its discretionary attribute. For example, in 1998 the SEC ordered SunTrust bank to “trim the loan loss provisions it made in 1994, 1995 and 1996 as part of a broader investigation of earnings management in banking” (Kanagaretnam, Lobo and Mathieu, 2001). This followed an upward restatement of the firm’s profits for the three years and a reduction in its loan loss reserves by $100 million. In addition, the SEC released a statement asserting despite attributes of provisioning, “It must not be used to manipulate earnings or mislead investors” (SEC, 1998). This provisioning behaviour itself has been a source of substantial debate. Much focus has been placed with respect to whether earnings smoothing “increases the information content of earnings by revealing innate fundamentals” or, whether in fact it does the opposite and reduces the transparency of the fundamentals of a bank (Bushman and Williams, 2007).
Kanagaretnam et al (2001) found that bank managers save earnings through the use of loan loss provisions (increasing their provisions) in strong financial years and borrow earnings using loan loss provisions (lowering their provisions) during financial performances that are not seen as acceptable. Kim and Kross’ (1998) research provides evidence that adequately capitalised banks are treated differently to well capitalised banks by regulators, i.e. less restrictions and supervision. Fudenberg and Tirole’s (1995) found that during poor performances, managers boost reported performance by making positive discretionary accruals to reduce the likelihood of dismissal or interference by regulators. During periods of strong financial performances, managers are not overly concerned with dismissal or interference which leads to them saving current income for future periods where they might do poorly, by making negative accruals.

A second key factor that incentivises managers to income smooth is a bank’s need for external financing. High earnings volatility in the industry raises the likelihood of bank failures and is therefore “a leading indicator of the overall risk of the banking system” (Farook, Hassan and Clinch, 2010). Farooq et al (2010) adds that unlike investors in banks, “neither bank managers nor regulators are able to diversify the effects of such idiosyncratic risks”. Given that a bank’s cost of financing depends its perceived risk, bank managers will want to smooth income to reduce income volatility. Both “management and existing shareholders benefit if the bank can raise additional financing on more favorable terms” (Kanagaretnam, Lobo and Mathieu, 2001, p. 7).

Ahmed et al (1999) discovered that regulatory changes in 1990 have reduced the costs of income smoothing. Under the new regime, increasing earnings via loan loss provisions achieve a smaller impact on a bank’s capital, implying that “smoothing earnings via loan loss provisions is less costly” (Ahmed, Takeda and Thomas, 1999).

Collins et al (1995) found evidence that supports a positive relationship between loan loss provisions and earnings, which is consistent with income smoothing. Taktak’s (2010) study also found a “significant proportion of commercial banks in OECD countries tend to smooth their results intentionally”. While Wall & Koch
(2000) found evidence that suggests banks have an incentive to manage reported earnings, they did not see it as conclusive. Further, Misman and Ahmad (2011) found both Islamic and conventional banks in Malaysia used loan loss provisions for both earnings and capital management, supporting Zoubi and Al-Khazali’s (2007) study on 55 conventional and 10 Islamic banks operating in the GCC, which concluded they use loan loss provisions to manage earnings. Misman and Ahmad (2011) reveal Islamic banks “behave differently in their loan loss provisions management on the issue of capital smoothing” putting forward the contention of Islamic banks having “different capital ratios concerning loan loss provisions”.

Islamic banks should be no less subjected to such incentives to smooth earnings. In fact, their contractual structure suggests they may have even more reason to smooth their earnings (Farook, Hassan and Clinch, 2010). While Islamic banks operate on the profit-and-loss sharing principle, some “strive to provide distributions that mimic benchmark interest rates” (Farook, Hassan and Clinch, 2010) to allow them to compete with conventional banks and avoid disappointing their customers. If fundamental asset returns deviate from benchmark rates, some Islamic banks “may sacrifice their own share of earnings to maintain a competitive rate for their depositors” (Farook, Hassan and Clinch, 2010).

Sundararajan (2005) found, from a sample of 14 Islamic banks in 8 countries, a considerable smoothing of returns paid to profit sharing investment accounts, despite wide divergences in risk. This creates a revenue volatility risk that the Islamic banks’ shareholders have to bear, which in theory should be borne by the depositors, underlining the importance of smooth earnings for Islamic bank managers. Islamic bank managers are therefore exposed to pressure from shareholders in addition to investment depositors.

Moreover, Islamic banks will likely focus on the distributions to investment depositors over shareholders due to access to depositor funding being relatively cheaper, which may not necessarily be a negative outcome for shareholders. Most shareholders in Islamic banks are “institutional investors or high net worth individuals” (Farook, Hassan and Clinch, 2010), implying they are able to diversify their assets, and therefore their risks.
In contrast, Beatty et al (1995) did not find any evidence to support income smoothing. Taktak et al (2010) used a sample of 66 Islamic banks in Muslim countries over the period of 2001-2006 and discovered Islamic banks do not smooth income via loan loss provisions. Similarly, Taktak (2011), using a sample of 79 banks from 19 countries during the same period, found that Islamic banks do not use discretion to smooth their earnings.

Othman and Mersni (2012)’s comparative study between conventional and Islamic banks in the Middle East found that Islamic banks, in fact, did not use discretionary loan loss provisions to manage their earnings but rather only to manage their capital. They found Islamic banks and conventional banks used loan loss provisions in the same manner, concluding “all banks behave in the same way”.

4.2. Capital Management

Ahmed et al (1999) states that changes brought into place in 1990 “substantially alters bank’s incentives to manage capital and earnings via loan loss provisions” because of new capital requirements. These requirements limit the use of loan loss reserves as regulatory capital in two ways. Firstly, loan loss reserves no longer count as part of Tier 1 capital. Secondly, they only count as part of the total capital up to 1.25% of RWA. These changes imply “a less negative relation between capital and loan loss provisions” (Ahmed, Takeda and Thomas, 1999) as low capital banks have less incentive to increase loan loss provisions. Banks exceeding the upper bound on loan loss reserves face “diminishing incentives” to use provisions in capital management.

Using a sample of 113 conventional bank holding companies, Ahmed et al (1999) discovered that the relation between loan loss provisions and capital is more negative for banks with above average loan growth, consequently “benefiting more from capital management than other banks” and supporting the capital management theory. This could be particularly applicable to Islamic banks considering their relatively high loan growth.

Further evidence by Collins et al (1995) suggests that banks with less capital tend to have lower LLP than banks with higher levels of capital. Having studied Malaysian
banks, Ismail and Shahimi (2003) noted that such banks were inclined to rely on loan loss provisions to meet their tier 2 capital requirements. Misman and Ahmad’s (2011) found that both Islamic banks and conventional banks in Malaysia used loan loss provisions as “an important tool in their earnings management and capital management”.

In contrast, Beatty et al (1995), Kim and Kross (1998) and Ahmed et al (1999) found capital management does not have a positive influence on provisions. Zoubi and Al-Khazali (2007) found Islamic banks in the GCC do not use loan loss provisions to manage their capital and reserve requirements. Quttainah et al (2013) found that Islamic banks are “less likely to conduct earnings management” compared to non-Islamic banks. Ismail and Shahimi (2003) note in their study that Islamic banks do not rely on Tier 2 capital to fulfil their capital requirements supporting the notion that Islamic banks rarely hold any Tier 2 capital.

4.3. Signalling private information

Previous papers have examined managers’ use of loan loss provisions to signal private information about future changes in earnings. A large increase in provisions provides the market with information about the true quality of the loan portfolio and represents a “signal of impending asset write-downs” (Musumeci and Sinkey, 1989). Wahlen’s (1994) states that considering commercial bank loan portfolios are “typically 10 to 15 times larger than bank equity”, any changes to bank loan cash flows and default risks are “likely to have an important impact on the bank stock market values”. His research found a positive relationship between loan loss provisions and future changes in pre-loan loss earnings, consistent with the signalling private information theory.

Beaver et al (1989) and Beaver and Engel (1996) discovered that investors interpret an unexpected increase in provisions as a sign of strength as it signals a bank’s “intentions and abilities to resolve its problem debt situation” (Kanagaretnam, Lobo and Yang, 2003). Liu and Ryan (1995) went one step further and found that investors specifically reacted positively to additions to loan loss reserves for banks with sizeable, frequently renegotiated loans, such as mortgages and commercial loans. On the other hand, Ahmed et al (1999) found no such

Hatfield and Lancaster (2000) established that the market may view increases as negative “due to the surprise factor, a situation where investors were previously unaware of problems in a bank’s loan portfolio”. They explained that the market will take this to mean it is the only beginning of the corrective process. If however, the additions to loan loss reserves are seen as a way to increase tax savings or a change in policy towards the borrower, then the market would view it as a positive signal. They conclude that the market response varies according to the reasoning behind the announcements and how much knowledge investors already have regarding the non-performing loans.

More recent work by Kanagaretnam et al (2003) took into consideration various bank sizes. The study found that different bank managers face “different conditions and have different incentives, [therefore] their propensities to signal their private information vary cross-sectionally”. The empirical evidence discovered that there was a negative relation between a bank’s size and the propensity to signal, suggesting small banks have more incentive to signal to prospects to the market. Furthermore, they found a positive relation with earnings variability, future investment opportunities and degree of income smoothing.

4.4. Provisioning and the Economic Cycle
The global financial crisis was a product of many interlinked factors; however, the procyclicality of banking operations has “generally been perceived as a root cause” (Wezel, Chan-Lau and Columba, 2012). Many agree that the regulatory framework should limit it. Cavallo and Majnoni’s (2001) results found “only through sound provisioning practices minimum capital regulation can lose its procyclical features”.

Risk-based bank minimum capital requirements have a tendency of producing a procyclical effect on the economy (Basel Committee on Banking Supervision, 2000). Laeven and Majnoni’s (2002) econometric analysis on 1,419 banks in 45 countries deduces that banks “on average postpone provisioning when faced with favorable
cyclical and income conditions until negative conditions set it”. During economic downturns, the quality of banks’ loan portfolios inevitably deteriorates increasing their risk exposure, which simultaneously increases their level of capital requirements. Basel II’s risk weighting associated with each loan is “negatively related to the borrower’s credit quality” implying that when the overall credit quality deteriorates, capital requirements become “more stringent” (Covas and Fujita, 2010). This occurs just when capital becomes “more expensive or simply unavailable to weaker institutions” (Laeven and Majnoni, 2002).

The discussion on the procyclicality of provisioning erupted since the 1988 Capital Accord was originally enforced in G10 economies, and subsequently, the introduction of Basel-like approaches in the rest of the world. The debate is split between bank stability and credit supply. Many believe that risk exposures should be explicitly mirrored in the level of bank capital to avoid regulatory arbitrage and ensure the stability of the banking system. On the other hand, others see this as problematic during economic downturns due to a contraction in credit supply caused by the higher capital requirements that exacerbate downturns. Critics of the solvency ratios discipline warn that “controlling individual risk positions may not always minimize systemic risks” (Laeven and Majnoni, 2002) and strict capital requirements can have negative liquidity effects.

Syron (1991) first used the expression ‘capital crunch’ to label, not the drain of deposits in banks, but rather the “shrinking availability of credit from banks” during the early 1990s recession in the United Sates. Syron argued that the capital crunch “contributed to the severity of the recession in New England” (Bernanke and Lown, 1991) as banks sold off assets and scaled bank lending to meet regulatory capital standards, including the new international standards being phased under the Basel Accord during that period.

One of the key concerns, especially from a macroeconomic point of view, is that banks’ capital regulation has clearly induced procyclicality, amplifying the macroeconomic fluctuations that occur. Repullo and Suarez (2009) found that under Basel II, procyclicality can indeed be sizeable. In addition, Covas and Fujita (2010) found this to be more pronounced around the peaks and troughs of the business
cycle. In countries where banks are the key lenders to corporations, any cut back in lending by the banks can lead to a credit crunch, which would “in turn exacerbate the downturn” (Bikker and Metzemakers, 2004).

Bikker and Metzemakers (2004) explain that there are two fundamental links between the business cycle and provisioning. Firstly, as previously mentioned, is credit risk, which is the strongest link out of the two. Whilst the ‘classical view’ assumes that risk increases during a downturn and vice versa causing procyclicality, an alternative view is that of Borio et al (2001) and Lowe (2002). Borio et al (2001) state that credit risk “increases as economic booms mature”, particularly when “loan growth is relatively high” (Bikker and Metzemakers, 2004). The second link is attributed to earnings. Sound provisioning, via income smoothing by prudent banks that shift income from the good years to the bad years, can reduce the procyclical impact of provisioning and overcome the build up of credit risk.

According to the countercyclical view, provisions should be positively correlated with the lending cycle, and therefore, banks should build up loan loss reserves in good times to be drawn on in bad times. This view assumes forward-looking risk assessment by banks. In reality, it can be extremely difficult to predict when the economy peaks given the business cycle is inconsistent in duration and amplitude. The idea of shortsightedness in economic or financial decision making was introduced by Kahneman & Tversky (1973) and then developed further by Minsky (1982). He contributed the idea of “excess” lending that takes place during good times, which is corrected during recessions.

Islamic banks are not seen to be as procyclical as conventional banks due to a fundamental regulatory difference that separates them from the majority of conventional banks with regards to their provisioning policy. The AAOIF0 recommends that Islamic banks adopt dynamic provisioning (or statistical provisioning), to allow them to anticipate their credit risk and set provisions aside to take into account “expected losses rather than actual losses” (Taktak et al, 2010, Quttainah et al, 2013). This policy is seen to naturally smooth earnings while strengthening the soundness of the banks as it helps anticipate and cover credit
losses along the lending cycle. The policy sets up a safety net of funds that can be used during periods of distress. Islamic banks must “preserve an adequate level of provisioning against the impairment of assets and problem exposures by recognizing a general and specific provision” (Taktak et al, 2010). The general provision, used to cover unexpected losses, is based on a percentage of the financing portfolio.

Similarly, Spain introduced a dynamic provisioning system in July 2000, which was based on risk assessment with a longer time horizon. The World Bank (2009) stated dynamic provisioning’s “anticyclical nature enhances the resilience of both individual banks and the banking system as a whole”. Banco de Espana, Spain’s central bank, put this into place to “cope with a sharp increase in credit risk on Spanish banks’ balance sheets following a period of significant credit growth during the late 1990s” (Mahapatra, 2012). In addition, there was a significant reduction in non-performing loans, whilst heavy competition between banks led to inadequate loan pricing. In 1999, Spain had the “lowest ratio of loan loss provisions to total loans among OECD countries” with the “highest correlation between the provisioning ratio and the GDP growth rate” (Mahapatra, 2012). Clearly the country’s banks were very procyclical, explaining the motivation behind the central bank’s decisions to increase the provisions made during the boom period. Other countries, such as France and the Netherlands, started to allow “certain forward looking elements in provisioning” (Bikker and Metzemakers, 2004). Uruguay, Colombia, Peru and Bolivia followed Spain’s lead in dynamic provisioning whilst Mexico and Chile switched to provisioning based solely on expected loan loss (Wezel, Chan-Lau and Columba, 2012).

Spain’s initial dynamic provisioning regime comprised of banks building up a statistical provision during periods of expansion which was charged quarterly on the profit and loss account. This fund, which had an upper and lower limit, was then built up to be used when “specific provisions grow above the average latent risk” (World Bank, 2009). Since loan portfolios, such as credit cards, mortgages or small and medium-enterprise loans, are not similar in their credit risk, the latent risk, described as the “risk parameter dependent upon the credit growth” (Mahapatra,
2012), also had to differ. Banco de Espana offered banks a standard model that could be used to calculate latent loss depending on the loan portfolio. This dynamic provisioning method was seen as excessive and seen to favour income smoothing.

In 2004, Spain’s central bank revised the provisioning system due to new EU wide reporting standards and in response to what many considered a provisioning system contrary to the ‘fair value’ principles. The revised model reverted to only two types of loan loss provisions; general and specific provisions. The general (statistical) provisions were split into two components, alpha (the latent loss) and beta (the average specific provision for, ideally, a full business cycle). Each loan type had its own alpha and beta value (in percentages) which increased based on the asset’s risk characteristics. The alpha was the “average estimate of credit losses” whilst the beta was the “historical average of specific provisions” (Mahapatra, 2012). The new general provisions depended on “both the stock of loans and new loan production” (Fernández de Lis and Herrero, 2009). In the calculation of the new general provision, specific provisions compensate similarly to the way the previous statistical provision worked. This implies that in an upturn where specific provisions would be expected to be low due to lower non-performing loans, “generic provisions would rise due to credit growth” (Fernández de Lis and Herrero, 2009). A new limit for the general provisions was created, between 33% and 125% of the alpha, to “avoid under provisioning and excess provisioning” (Mahapatra, 2012). The formula to calculate general provisions is shown in Equation 1.

Equation 1: General Provisions (Fernández de Lis and Herrero, 2009)

\[
\text{Generic provisions} = (\text{new loan production } \times \alpha) + (\text{stock of loans } \times \beta) - \text{specific provisions}
\]

The events since 2007 showed a dramatic turn. As the global financial crisis hit Spain, both GDP and credit plummeted rapidly with non-performing loans rising swiftly, forcing a fivefold increase in specific provisions between summer 2007 and spring 2009. Generic provisions also decreased very quickly, but “not sufficiently to compensate for the increase in specific provisions” (Fernández de Lis and Herrero, 2009). By the end of 2009, the Spanish banks went from being a model for the rest
of the world due to seemingly dodging the financial crisis, to requiring a $125 billion bailout in 2012 (Weil, 2012). Many blamed their provisioning system for their ability to mis-report losses. The third largest bank in the country, Bankia, was forced to restate its 2011 results “to show a 3.3 billion-euro ($4.2 billion) loss rather than a 40.9 million-euro profit” (Weil, 2012).

Fernández de Lis and Herrero (2009) indicate that whilst the provisioning system did indeed create a cushion in the good times, it did not discourage credit growth or the rise in house prices. During a large enough economic boom, such as the one Spain experienced, the impact of an additional provision on credit supply is minimal. They concluded that any solution to the procyclicalility problem must maintain the “equilibirum between making regulation more anti-cyclical” whilst “reinforcing transparency of banks’ accounting statements”. Furthermore, Mahapatra (2012) asserts economic cycles can be too powerful to counteract the impact of prudential rules “if there is a serial underestimation of risks”, as was the case in Spain.

Interestingly, Uruguay implemented a slightly modified version of the Spanish dynamic provisioning system in 2001. Their formula maintained a different upper limit to the statistical fund, specifically a limit of 3% of total loans, even after Spain moved to a limit linked to latent loss in 2005. This led banks in Uruguay to hold vast amounts of provisions which were “as high as six times non-performing loans” (Wezel, Chan-Lau and Columba, 2012). In 2011 regulators overhauled the formula to “align provisioning rates with expected loss[es]” (Wezel, Chan-Lau and Columba, 2012). Significantly, both Uruguay and Spain now require banks to dynamically provision solely against non-performing loans.

These two cases highlight that provisioning may be affected by country-specific circumstances with respect to accounting, regulatory and tax rules in addition to macroeconomic and microeconomic factors, such as the national economy, asset bubbles and managerial attitudes to risk. Even though dynamic provisioning can increase financial stability by recognising losses early in an economic cycle and building up a buffer, there is no guarantee that the provisions will be enough to cope with all the credit losses during a downturn, especially during longer economic
and credit booms. In the case of Uruguay, the banks held too much capital that it negatively impacted lending and the economy, forcing regulatory reform.

Bikker and Metzemakers (2004) conclude that “provisioning appears to depend significantly on the business cycle” implying that banks’ provisioning behaviour is procyclical. This procyclical is slightly mitigated by either “dubious income smoothing or to recommendable farsighted dynamic provisioning”.

Wezel et al (2012) found that dynamic provisioning can “smooth provisioning costs over the credit cycle and lower banks’ probability of default”. Moreover, they find strong support for dynamic provisioning as a tool for countercyclical banking policies. Using Monte-Carlo simulations they discovered that the countercyclical buffer, which dynamic provisioning builds up, tends to reduce a bank’s chances of default leading to a strengthened financial system. Balla and McKenna (2009), Fillat and Montoriol-Garriga (2010) and Wezel (2010) all found support for the notion that dynamic provisioning, when properly regulated, can help absorb rising loan losses in a downturn and thus be a useful tool to mitigate the risk of the financial system. Furthermore, Lim et al. (2011) and Peydr-Alcald et al (2011) found that dynamic provisioning is effective in moderating credit growth, although “this is not expected of dynamic provisioning” (Wezel, Chan-Lau and Columba, 2012).

4.5. Basel III
The financial turmoil of 2008/09 has raised awareness amongst the major 20 economies regarding the procyclical problem in the regulatory framework, influencing the group to address it. The G20 regarded it as a “key issue to be addressed” (Repullo and Saurina, 2011) in order to restore confidence to the markets and the world economy. They set a 2009 deadline in the G20 ‘Progress Report’ to take forward recommendations to ensure financial regulations “dampen rather than amplify economic cycles, including by building a buffer of resources during the good times” (G20 Progress Report, 2009). During the same year, the Basel Committee on Banking Supervision (2009) published a document that considered four objectives to address procyclicality which were:

- Dampening any excess cyclicality of the minimum capital requirement
- Promoting forward looking provisions
- Conserve capital to build buffers at individual banks and the banking sector that can be used in stress
- Achieve the broader macropredutential goal by protecting the banking sector from periods of excess credit growth

The third and fourth objectives resulted in the capital conservation buffer and the countercyclical capital buffer in the new regulatory framework known as Basel III, which major economies are expected to fully implement by 2018. Both were set up in light of the financial crisis that lead to the destabilising of the banking sector. Basel III aims to tackle procyclicality via these two elements by building up the buffers during profitable cycles that can be drawn upon during periods of stress. In addition, Basel III will increase the minimum capital requirements of common equity to 4.5% (excluding the capital conservation buffer of 2.5%), up from the 2% in Basel II and, “lends support to forward-looking loan loss provisioning, which comprises dynamic provisioning” (Wezel, Chan-Lau and Columba, 2012). Peru is currently the only country to explicity use both countercyclical capital buffer and dynamic provisioning in combination.

The new capital conservation buffer of 2.5% will ensure banks maintain a buffer of capital that can be used to absorb losses without going below the minumum capital requirements. Importantly, it will reduce the possiblity of “a self-reinforcing adverse cycle of losses and credit cutbacks” (Cruana, 2010). The second buffer, known as the countercyclical capital buffer, aims to increase a bank’s capital defences in periods of extreme credit growth, especially if seen by national regulators to be “aggravating system-wide risk” (Cruana, 2010). This buffer will be in the range of 0 to 2.5% of risk-weighted assets, with national authorities having the ability to implement a higher buffer if it is deemed appropriate. Reductions in the buffer take effect immediately whilst decisions to increase it must be pre-announced by up to
12 months (AFME\textsuperscript{1}, 2012). The IMF (2011) characterised the countercyclical capital as potentially cushioning the economy’s real output during a crisis.

If banks fail to meet the additional capital requirement, i.e. their capital falls within the capital conservation range, they will be able to conduct business as usual, however, will be subject to restrictions on capital distribution (dividends, share repurchases and discretionary staff bonuses). These distribution constraints increase as the bank’s capital falls closer to the minimum capital requirements. By design, the constraints imposed on banks with capital levels at the top of this range would be minor, reflecting the expectation that banks’ capital levels “will from time to time fall into this range” (Lekatis, 2011). Repullo and Suarez (2012) add that banks may hold capital buffers because “they wish to reduce the risk of facing a statically binding requirement in the future”. This in effect further reduces a bank’s procyclicality.

Repullo and Saurina (2011) concluded that a micro-oriented supervisor concerned about bank failures would “naturally be averse to reducing capital requirements in a downturn” and even a macro-oriented supervisor would “probably do too little too late”, contributing to a further reduction of credit supply. Repullo and Saurina (2011) state that Basel III in its current shape will not help dampen the procyclicality of bank capital regulation and “may even exacerbate it” due to the continued use of risk-sensitive capital requirements, which are by definition highly procyclical.

Repullo (2013) believes Basel III “reinforces the quality and quantity of the minimum capital required to banks” and the reforms “constitute a move in the right direction”. Harzi (2013) adds that it has a clear positive impact in terms of competition for Islamic banks as conventional banks will “see their capital (all things being equal) decrease by a larger share than Islamic banks” implying they will experience higher costs of compliance. The redefinition of capital has “a quite important impact on the conventional banks” whereas Islamic banks will marginally be affected due to their capital already being in the form of tier 1. Additionally, the

\textsuperscript{1} Association for Financial Markets in Europe
majority of Islamic banks already maintain higher capital levels than the current regulatory minimum. For example, the average tier 1 ratio of 18 Islamic banks in Qatar is about 22.8%.

4.6. Cultures and Incentives
Different provisioning policies can work in certain countries and fail in others, as shown by Spain and Uruguay. This is emphasised further by the contrasting results from numerous research papers and is due to different incentives, diverse cultures, varying regulatory pressures and uncommon economic cycles. For example, dynamic provisioning has been successfully implemented in Islamic banking whilst it has failed in Spain and Uruguay. Islamic banking’s successful implementation of dynamic provisioning can be attributed to the religious link that unites the banking sector’s regulatory and fundamental values and principles. This implies all the banks take very similar attitudes towards risk and the way in which they protect themselves from these risks.

All Islamic banks follow the principle of ‘balance between moral and material requirement’, encouraging the banks to acquire physical assets under their ownership before selling them to their clients. This bears a significant implication in that it reduces the banks’ chance of overextending their use of credit and “hence their profitability” (Taktak et al, 2010). In contrast, conventional banks have no such requirements and tend to excessively use credit and debt financing that can lead to larger financial risks, especially during times of difficulty as experienced during 2008/09.

Clearly, the success of implementing dynamic provisioning in Islamic banks has acquired the attention of international regulators. Basel III provisioning policies are very similar to the way Islamic banks currently operate with regards to raising a safety net of funds to be used during times of stress. The policies alone however will not insulate conventional banks from future crises if managerial moral towards opportunism are not tackled, as dynamic provisioning heavily relies on managerial discretion. Abdul Rahman and Abdullah (2005) found banks in Malaysia with Muslim managers practiced less earnings management than ones directed by non-Muslim
managers, pointing out the significance of managerial attitude and discretion. Quttainah et al (2013) adds that Islamic law plays an integral role in shaping ethical behaviors of managers, managing the allocation of resources and the distribution of income and wealth. Further, the Shariah Supervisory Board of each Islamic bank plays an important role in ensuring compliance, adding an extra regulatory pressure on managers to discourage "opportunistic behaviours".
5. Data and methodology

5.1. Sample and data
The initial sample of Islamic banks from the international database “Bankscope” comprised an unbalanced panel of 147 banks. After removing unconsolidated bank data and any banks that had less than two years of reported loan loss provisions data, the sample size was reduced to 60 Islamic banks covering the period between 2002 and 2012. Using consolidated data ensures any subsidiaries that the 60 banks own are aggregated rather than listed separately. The bank-specific data sourced from Bureau van Djik’s (2013) Bankscope database included total loans, non-performing loans (NPLs), profit before tax, total assets, tier 1 capital, gross loans and loan loss provisions. All bank-specific data is in thousands of dollars to allow for ease of comparison. It is assumed that the data has been accurately entered into Bankscope.

Macroeconomic data such as GDP per capita annual growth rate and inflation were sourced from the World Bank database. Any data that were missing were then sourced from Tradingeconomics (2013). Several countries did not have any official statistics for recent years. In such cases, estimates were sourced from the CIA “World Factbook”. It is assumed that data from these three sources, including the estimates, are accurate. The difficulty in obtaining reliable yearly GDP and inflation data for Lebanon and Palestine, meant banks based in the two countries had to be excluded from the dataset, which in turn reduced the sample size.

The final data set achieved consists of 57 banks, including 627 bank-year observations, operating in 15 countries. Figure 4 below highlights that the sample is a fair representative because 82.5% of the banks included come from within the GCC, Jordan and Malaysia. This is significant as they account for 80% of the Islamic banking industry (IMF Survey, 2010). Even though the number of banks included may be considered small, it is important to note that there are far fewer Islamic banks than conventional banks, and many are still in the development stage.
The 11-year period of 2002-2012 is sufficiently long enough to capture both an economic upswing and a downturn. This specific time interval captures the upswing of the early millennium and the downturn caused by the financial crisis in 2008/09. Table 6 highlights that 11 out of the 16 countries included in the sample experienced a downturn during the global financial crisis. Only Indonesia, Jordan and Sudan avoided a downturn during the 11-year period. Whilst Syria and Yemen managed to avoid a recession, they experienced recessions in 2003 and 2011-12 respectively. Interestingly, Indonesia, Jordan and Sudan did not experience a year of contraction at any point during the period, although both Jordan and Sudan experienced much slower growth during and post-crisis. This could be down to the data being manipulated by the countries’ respective governments to show their economic policies are both viable and productive.
## Table 6: GDP growth per capita (%)  

<table>
<thead>
<tr>
<th>Country Name</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab World</td>
<td>2.1</td>
<td>2.9</td>
<td>-0.5</td>
<td>2.4</td>
</tr>
<tr>
<td>World</td>
<td>2.8</td>
<td>0.2</td>
<td>-3.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Bahrain</td>
<td>-0.2</td>
<td>-1.7</td>
<td>-3.4</td>
<td>-0.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>4.8</td>
<td>4.5</td>
<td>3.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Iran, Islamic Rep.</td>
<td>6.6</td>
<td>1.1</td>
<td>0.6</td>
<td>-13.7</td>
</tr>
<tr>
<td>Iraq</td>
<td>-1.0</td>
<td>4.1</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Jordan</td>
<td>5.8</td>
<td>4.9</td>
<td>3.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Kuwait</td>
<td>-1.2</td>
<td>-0.8</td>
<td>-10.1</td>
<td>-1.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4.4</td>
<td>3.0</td>
<td>-3.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Pakistan</td>
<td>3.7</td>
<td>-0.3</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Qatar</td>
<td>-0.9</td>
<td>-0.2</td>
<td>-2.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>-0.1</td>
<td>2.4</td>
<td>-1.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Sudan</td>
<td>8.4</td>
<td>0.1</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>1.6</td>
<td>0.5</td>
<td>2.5</td>
<td>0.8</td>
</tr>
<tr>
<td>Turkey</td>
<td>3.4</td>
<td>-0.6</td>
<td>-6.0</td>
<td>7.8</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>-13.2</td>
<td>-11.9</td>
<td>-13.3</td>
<td>-7.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>3.0</td>
<td>-1.6</td>
<td>-4.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Yemen, Rep.</td>
<td>0.8</td>
<td>1.2</td>
<td>1.4</td>
<td>5.2</td>
</tr>
</tbody>
</table>
5.2. Empirical Model

The purpose of this dissertation is to investigate the key determinants and motivations behind loan loss provisions within Islamic banks. Based on the literature review, I hypothesise that the key determinants are a bank’s size, tier 1 capital, loan growth rate, non-performing loans and previous provisions (i.e. they dynamically provision). I also hypothesise that Islamic banks are not procyclical and therefore considerably more prudent in their provisioning. If any of the following conditions are met, then Islamic banks can be considered prudent in their provisioning:

1. Loan loss provisions are positively correlated with banks’ earnings.
2. Loan loss provisions are positively linked to loan growth and/or non-performing loans.
3. Loan loss provisions are positively associated with GDP growth per capita.

Condition one refers to the income-smoothing theory whilst condition two and three capture loan loss provision alignments with “bank-specific and macroeconomic cyclical indicators” (Laeven and Majnoni, 2002). The banks are not considered procyclical if conditions 2 and 3 hold.

In order to test whether the conditions stand or not, and to examine the determinants of bank’s provisioning decisions, the model in Equation 2 is estimated.

**Equation 2: Basic fixed-effects regression model**

\[
\left( \frac{LLP}{A} \right)_{it} = \alpha + \beta_1 \left( \frac{EBTP}{A} \right)_{it} + \beta_2 \Delta L_{it} + \beta_3 \Delta GDP_t + \beta_4 T_{it} + \beta_5 \left( \frac{Size}{A} \right)_{it} + \beta_6 \left( \frac{Tier}{A} \right)_{it} + \beta_7 \left( \frac{NPL}{A} \right)_{it} + \nu_i + \varepsilon_{it}
\]

Where:
- \( \left( \frac{LLP}{A} \right)_{it} \): Loan loss provisions (LLP) over the bank’s total assets for bank i at time t
- \( \left( \frac{EBTP}{A} \right)_{it} \): Earnings before tax and loan loss provisions over the bank’s total assets for bank i at time t
- \( \Delta L_{it} \): Loan growth in real terms for bank i at time t
- \( \Delta GDP_t \): Real GDP per capita growth rate at time t
$T_t$: Year dummy – 1 for pre-2010, 0 otherwise

Size$_{it}$: Natural logarithm of Bank $i$’s total loans over the bank’s total assets at time $t$

($\frac{\text{Tier}}{\text{A}}$)$_{it}$: Tier 1 capital over the bank’s total assets for bank $i$ at time $t$

($\frac{\text{NPL}}{\text{A}}$)$_{it}$: Non-performing loans over the bank’s total assets for bank $i$ at time $t$

$\upsilon_i$: Measures the bank-specific coefficient

$\varepsilon_{it}$: Error term

The dependent variable in Equation 2 is the level of loan loss provisions scaled by total assets to avoid the potential problem of heteroskedasticity. Total bank assets also scaled EBTP, size and tier. A bank’s size can be measured in various ways such as total loans outstanding, equity market value or total assets. Managerial discretion is largely dependent on the magnitude of outstanding loans; it is the most suited size proxy for this study (Kanagaretnam et al, 2003). The empirical specification used here closely follows the models used in the literature to test the income-smoothing hypothesis (see Laeven and Majnoni, 2002 and Greenawalt & Sinkey, 1988).

The model is estimated using bank-specific fixed effects due to the Hausman specification test hypothesis ($H_0$) being rejected, validating it over the random effects model. This identifies the fixed effects estimator as being consistent and more efficient. Under the fixed effects regression, the individual bank effects are assumed to be correlated with the regressors and therefore not constant. If we interpret the bank-specific effects as reflecting the banks’ own business strategies and their regulatory environment, then it is clear that these can differ between banks and countries. Therefore, it can be argued that these are likely to be correlated with the bank’s ability to make new loans and grow their loan pool at faster rates, their tier 1 capital, the country’s GDP and the bank’s size.

The critical explanatory variable being tested is the banks’ earnings. The proxy used is earnings before tax and provisions, which is used by several previous empirical literature such as Laeven and Majnoni (2002), Taktak et al (2010) and Farook et al (2010). Bank risk is accounted for via loan growth and non-performing loans which
measure credit growth, and GDP per capita, which controls for the economic cycle. Higher levels of loan growth is associated with lower monitoring efforts, whilst non-performing loans measure the quality of the loan portfolio. The economic cycle is important as booms tend to reduce credit risk, whereas downturns have the opposite effect as more loans are defaulted on.

Prior research found conflicting results with regards to the relationship between the critical explanatory variable and loan loss provisions. Under the income-smoothing hypothesis, the relationship should be positive as suggested by Collins et al (1995), Ahmed et al (1999) and Beatty et al (1995). Tier 1 capital has been included to control for discretionary loan loss provisions in the form of capital management. The inclusion of a time dummy allows the model to capture time-specific effects, such as changes in regulation and impacts from the financial crisis. A separate test will include a negative earnings dummy (1 for negative earnings, 0 otherwise) interacted with the EBTP/Assets to determine whether negative earnings have an impact on how provisions are handled.

A second alternative model to test the 3 conditions and the determinants behind loan loss provisions is depicted by Equation 3 whereby a dynamic model of loan loss provisions is used by introducing two lags of the dependent variable.

**Equation 3: Arellano-Bond GMM Dynamic model of loan loss provisions**

\[
\left( \frac{LLP}{A} \right)_{it} = \alpha + \gamma_1 \left( \frac{LLP}{A} \right)_{it-1} + \gamma_2 \left( \frac{LLP}{A} \right)_{it-2} + \beta_1 \left( \frac{EBTP}{A} \right)_{it} + \beta_2 \Delta L_{it} + \beta_3 \Delta GDP_{it} + \beta_5 \left( \frac{Size}{A} \right)_{it} \\
+ \beta_6 \left( \frac{Tier}{A} \right)_{it} + \beta_7 \left( \frac{NPL}{A} \right)_{it} + u_i + \epsilon_{it}
\]

The dependent variable’s lagged values “captures the speed of adjustment of loan loss provisions to an equilibrium level” (Laeven and Majnoni, 2002). This model better captures the potential impact of total bank assets on loan loss provisions through the lagged values, reducing potential problems of omitted variables. Moreover, it increases focus on the effects of the flow variables on loan loss provisioning (Laeven and Majnoni, 2002). The first and second lags will take into
account the speed of provision adjustments within the first year and beyond the first year.

The inclusion of lags of the dependent variables renders OLS estimations for Equation 3 inconsistent, hence the Arellano-Bond estimator will be used. It allows the model to achieve consistent estimates for our model and as Mileva (2007) explains, this Generalized Method of Moments (GMM) difference estimator is designed to handle panel data with a short time horizon (11 years) and a larger set of banks (57). Furthermore, the Arellano-Bond estimator resolves the problems raised by the presence of individual unobserved bank effects (v_i). It gives consistent estimates under the assumption that the error term is not serially correlated and the explanatory variables are weakly exogenous. Under these assumptions, lags of the dependent variable are valid instruments and the GMM estimator is efficient.

To assess whether these assumptions are indeed valid, a test of second-order serial autocorrelation of the error term must be considered. The results of the test, shown in Table 7, conclude that the hypothesis of no autocorrelation cannot be rejected, and therefore the assumptions are valid. If this were not the case, then the GMM difference estimator would not be valid. Additionally, the Sargan test confirms there is an absence of correlation between the instruments and the error term in my model as the null hypothesis of ‘over identifying restrictions are valid’ cannot be rejected.

<table>
<thead>
<tr>
<th>Order</th>
<th>z</th>
<th>Prob &gt; z</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-1.517</td>
<td>0.1293</td>
</tr>
<tr>
<td>2</td>
<td>1.4125</td>
<td>0.1578</td>
</tr>
</tbody>
</table>

Table 7: Arellano-Bond test for zero autocorrelation in first-differenced errors

The key results of interest in our analysis are the coefficients on EBTP, GDP, change in gross loans and tier one capital (β_1, β_2, β_3 and β_6). In order to establish whether banks are prudent in their provisioning, the results must reveal a positive coefficient for earnings before tax and provisions, loan growth, GDP growth and
non-performing loans. If this were not the case, then my hypothesis that Islamic banks are prudent in their provisioning would be rejected.

Table 8: Coefficient sign implications

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Positive result inference</th>
<th>Negative result inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>β₁</td>
<td>Income-smoothing</td>
<td>No income-smoothing</td>
</tr>
<tr>
<td>β₂</td>
<td>Prudent provisioning</td>
<td>Imprudent provisioning</td>
</tr>
<tr>
<td>β₃</td>
<td>Not procyclical</td>
<td>Procyclical</td>
</tr>
<tr>
<td>β₄</td>
<td>Provisioning has decreased post-2010</td>
<td>Provisioning has increased post-2010</td>
</tr>
<tr>
<td>β₅</td>
<td>Bigger banks provision more</td>
<td>Bigger banks provision less</td>
</tr>
<tr>
<td>β₆</td>
<td>Rejects use of LLP for capital management</td>
<td>Confirms use of LLP for capital management</td>
</tr>
<tr>
<td>β₇</td>
<td>Prudent provisioning</td>
<td>Imprudent provisioning</td>
</tr>
</tbody>
</table>

The coefficients of the lagged dependent variables are focal in the second model as they will identify whether or not Islamic banks adjust their loan loss provisions quickly. A significant γ₁ or γ₂ would reveal the banks are slow in adjusting the provisions over a multiyear horizon and would confirm that a dynamic model is applicable.

5.3. Descriptive Statistics

Table 9 reveals the bank-year distribution of the sample used across the 11-year period by country. The countries with the most representation are Bahrain, Kuwait, United Arab Emirates and Iran, which is appropriate given the GCC’s dominance in Islamic Banking.
Table 9: Distribution of bank-year observations by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>143</td>
<td>22.81</td>
</tr>
<tr>
<td>Indonesia</td>
<td>11</td>
<td>1.75</td>
</tr>
<tr>
<td>Iran</td>
<td>66</td>
<td>10.53</td>
</tr>
<tr>
<td>Jordan</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Kuwait</td>
<td>77</td>
<td>12.28</td>
</tr>
<tr>
<td>Malaysia</td>
<td>33</td>
<td>5.26</td>
</tr>
<tr>
<td>Pakistan</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Qatar</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Sudan</td>
<td>44</td>
<td>7.02</td>
</tr>
<tr>
<td>Syria</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Turkey</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>88</td>
<td>14.04</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>22</td>
<td>3.51</td>
</tr>
<tr>
<td>Yemen</td>
<td>11</td>
<td>1.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>627</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 10 presents descriptive statistics for the variables used in the estimation of Equation 2. The ratio of loan loss provisions to total assets equals 0.64% on average, with a maximum of 10.3% and a standard deviation of 1.35%. These results are similar to Taktak et al (2010) who reported an average of 0.54%. Further, Zoubi and Al-Khazali (2007) found that GCC bank’s allocate on average only 1.31% and explained that this implies that they “make a very low estimate of loss provisions”. The average earnings before taxes and provisions to total assets is 1.96%, compared to Taktak et al’s (2010) 2.29% and Zoubi and Al-Khazali’s (2007) 2.23%, with a maximum of 26.1%. On average, the natural logarithm of banks’ size is 13.62% with low dispersion from the mean, highlighted by the low standard deviation of 2.19%.
The average loan growth in the sample is 33.2%, indicating Islamic banking’s rapid growth over the period of 2002-2012. It is important to note that the average loan growth has not been filtered out, unlike previous studies on loan loss provisions, such as Laeven and Majnoni (2002). The result is a relatively high standard deviation which indicates large dispersion in the loan growth rates. This decision is appropriate given the fact that Islamic banks have witnessed tremendous growth over the last decade with certain banks growing at much faster rates than others. Removing the banks with extreme growth may negatively impact the overall results. Figure 5 highlights the rapid growth of Islamic banking over the last decade and the impacts of the financial crisis during 2008/09. Notably, Islamic banks have yet to resume the growth rates they were achieving pre-crisis, despite continuing to outperform conventional banks.
Figure 5: Average growth rate of gross loans for Islamic banks included in the sample

Figure 6 accentuates the impact of the financial crisis as it hit earnings heavily with the banks having to, on average, increase their loan loss provisions to cover the increase in non-performing loans. The banks’ earnings have yet to recover to pre-crisis levels even 3 years on. In addition, both non-performing loans and provisions still remain above the average level they were at before 2008. The negative earnings dummy, which will provide insight into how the banks managed their provisions during periods of negative earnings, will be of critical interest.

Figure 6: Average Loan loss provisions, earnings before tax and provisions and non-performing loans (all scaled by total assets).
Table 11 indicates that LLP’s correlation with EBTP and GDP are both negative and statistically significant. The correlation between loan loss provisions and EBTP is approximately negative 26%, suggesting that on average banks do not exercise income-smoothing. Prior studies on Islamic banks have also shown negative significant correlation at 5% for EBPT such as Taktak et al (2010) and Farook et al (2010). Likewise, Taktak et al (2010) found GDP to have a significant negative correlation with loan loss provisions for Islamic banks while Farook et al (2010) found it to have an insignificant correlation.

Table 11: Correlation Matrix (asterisks mark significance at the 5% level)

<table>
<thead>
<tr>
<th></th>
<th>LLP</th>
<th>EBTP</th>
<th>GDP Growth</th>
<th>Loan Growth</th>
<th>Non-performing loans</th>
<th>In(Size)</th>
<th>Tier 1 Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBTP</td>
<td>-0.261*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP Growth</td>
<td>-0.143*</td>
<td>0.073</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan Growth</td>
<td>0.053</td>
<td>0.062</td>
<td>-0.120*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-performing loans</td>
<td>0.067</td>
<td>-0.024</td>
<td>0.116*</td>
<td>-0.103</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(Size)</td>
<td>0.015</td>
<td>0.154*</td>
<td>-0.135*</td>
<td>0.012</td>
<td>-0.131*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tier 1 Capital</td>
<td>-0.049</td>
<td>-0.141</td>
<td>0.058</td>
<td>0.028</td>
<td>0.079</td>
<td>-0.581*</td>
<td>1</td>
</tr>
</tbody>
</table>

Laevens and Majnoni (2002), Kanagaretnam et al (2003) and Bikker and Metzemakers (2005) all found earnings to be positively significant for conventional banks worldwide suggesting they tended to income-smooth. In addition, the former two found GDP to be negatively correlated and significant (Kanagaretnam et al did not include GDP in their tests). Prominently however, the GDP coefficients for conventional banks appear to be relatively far larger than for Islamic banks. The negative correlation between loan loss provisions and GDP growth suggests procyclical behaviour as it indicates they increase their loan loss provisions when the economy shrinks. It is important to note that the correlation between GDP and earnings might cause a multicollinearity problem in the econometric analysis.
does not appear to be a problem for this sample as the correlations are not exceedingly high.

Moreover, Table 11 suggests prudent behaviour by the average bank due to the positive correlation with loan growth and non-performing loans. However, both are not significant even at the 10% level, therefore cannot confirm whether they dynamically provision or not. Farook et al (2010) and Taktak et al (2010) found similar results with regards to loan growth and non-performing loans for their samples of Islamic banks. Kanagaretnam et al’s (2003) non-performing loans and change in loans coefficients mirrored the results seen in Table 11. Interestingly, when combining Islamic banks with conventional banks, Farook et al’s (2010) loan growth variable becomes significant and negatively correlated with loan loss provisions at the 1% significance level, achieving comparable results to Fonseca and González’s (2008) cross-country study of conventional banks. A negative coefficient for non-performing loans and loan growth implies imprudent behaviour by the banks since they are not increasing their provisions in line with the building up of credit risk.

Both the size and tier 1 capital variables are insignificant. Packer and Zhu (2012) found similar results for conventional banks however, prior studies on Islamic banks have found positive significant correlations between size and loan loss provisions, such as Farook et al (2010) and Taktak et al (2010). With regards to the correlation between capital and loan loss provisions, Taktak et al (2010) found a negative significant correlation. Separately, testing the correlation between provisions and the natural logarithm of total assets (a popular size proxy in other academic work) lead to the same outcome where size was insignificant.

5.4. Limitations

The data and methodology presented has several limitations that must be highlighted as they may impact the overall results. Firstly, the sample size can be considered a constraint; however, considering the industry’s relatively small size and given the fair representation in the sample, the impact should be minor. Secondly, the time period covered only represents 11 years. The results achieved may change if this period was extended further into the past, although it is evident
that the industry has grown and developed extensively over the last decade. For this reason, and the scarce historical data available for years further back, the decision was made to limit the sample to 11 years to ensure accuracy and relevancy in the outcomes. Thirdly, the fact that the empirical analysis is completely reliant on quantitative data and does not involve any qualitative aspects, such as interviewing Islamic bank managers, can be seen as a limitation. Likewise, the use of conventional banking journals’ results, rather than running separate empirical tests on conventional banks to compare the two banking types, is a drawback. However, given the scope of this dissertation, utilising existing conventional banking research and quantitative models can provide a solid understanding behind the determinants of loan loss provisions and how they compare and contrast to conventional banks. Finally, as with all empirical tests, they come with their own limitations and they can only be as accurate as the data set being utilised. Examples include GDP and inflation which may be politically influenced to avoid financial distress or avoid political damage. Unfortunately, this final limitation cannot be overcome.
6. Empirical Analysis

The empirical analysis is split into 4 parts. First, the findings are highlighted. Second, the findings are analysed. Subsequently, the findings are compared to previous loan loss provision research, which focused on Islamic banking, followed by the final section that compares the findings to existing studies on conventional banks.

6.1. Findings

Table 12 presents the regressions results for the first model (Equation 2 on page 42), controlling for individual bank-specific effects, such as their own specific business strategies, institutional frameworks, and external regulatory, tax, accounting and legal environments. The results show the variables loan growth; size and tier 1 capital have a significant negative relationship with loan loss provisions. The year dummy is found to be insignificant.

| Coefficient   | P>|t| |
|---------------|-----|
| EBTP/Assets   | 0.0478 | 0.2090 |
| Loan Growth (%) | -0.00005 | 0.0280** |
| GDP Per Capita | -0.0001 | 0.8000 |
| Ln(Size)      | -0.0213 | 0.0000*** |
| NPL/Assets    | -0.0961 | 0.4380 |
| Tier 1 Capital/Assets | -0.0767 | 0.0630* |
| Year Dummy    | 0.0030  | 0.4890 |
| R2            | 0.008   |
| Hausman test (Prob>chi2 value) | 0.0018*** |

Note: *** indicates significance at 1%, ** indicates significance at 5%, * indicates significance at 10%.

A bank’s size is significant at the 1% level in determining loan loss provisions. The coefficient indicates that for a 1% rise in a banks’ size, loan loss provisions (scaled
by assets) fall by 0.000213 (0.0213/100) units, ceteris paribus. This suggests that bigger banks make fewer provisions.

7. The tier 1 capital variable has a coefficient of \(-0.0767\). It standard deviation increase in tier 1 capital, the dependent (see Table 17: Central Bank of Qatar’s loan classifications and provision requirements

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Loans that are 90-180 days past due.</td>
<td>0</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Loans that are 180-360 days past due.</td>
<td>25</td>
</tr>
<tr>
<td>Bad</td>
<td>Loans that are over 360 days past due.</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 18: Malaysia’s Central Bank loan classifications

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Loans that are 90-180 days past due.</td>
<td>20</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Loans that are 180-365 days past due.</td>
<td>50</td>
</tr>
<tr>
<td>Bad</td>
<td>Loans that are over 365 days past due.</td>
<td>100</td>
</tr>
</tbody>
</table>

Appendix note 1), ceteris paribus. The loan growth has a coefficient of -0.00005, indicating a 1 standard deviation increase in loan growth results in loan loss provisions falling by 0.00426%, ceteris paribus.
To allow for an asymmetric pattern of loan loss provisions during periods of both positive and negative earnings, Table 13 includes the earnings variable interacted with a negative dummy variable. The results reveal an insignificant coefficient for the dummy variable. Earnings before tax and provisions are now slightly significant at the 10% level. This signifies that for a 1 standard deviation increase in earnings, loan loss provisions fall by 0.0144%.

Table 13: Basic regression with fixed effects. A constant is included but not reported.

|                          | Coefficient |  P>|t| |
|--------------------------|-------------|-----|
| EBTP/Assets              | -0.2631     | 0.096* |
| Loan Growth              | -0.00004    | 0.039** |
| GDP Per Capita           | -0.0002     | 0.671  |
| Ln(Size)                 | -0.0247     | 0.000*** |
| Non-performing Loans/Assets | -0.0549  | 0.665  |
| Tier 1 Capital/Assets    | -0.0758     | 0.063* |
| Year Dummy               | -0.004      | 0.443  |
| Negative Earnings Dummy * EBTP/Assets | 0.3074 | 0.143 |

Note: Negative earnings dummy (negative earnings*EBTP) multiplied by the positive coefficient of the interaction term implies a negative effect on provisions.

Table 14 presents the results for the dynamic model (Equation 3). The first lag is revealed to be significant unlike the second lag. As with the previous model, tier 1 capital remains significant (now at the 1% level) with the coefficient remaining consistent. More importantly, the loss of a significant number of observations due to the inclusion of 2 lags of the dependent variable in the model does not appear to have heavily impacted the estimation results. This is highlighted by the similarities between the GMM model findings and the previous regressions, providing a good test of robustness of the results. The GMM regression does not reject the null hypothesis of no autocorrelation, which in turn increases the confidence in these results.

Table 14: GMM regression with 2 lags of the dependent variable. Constant is included in the model but not reported.
|                                | Coefficient | P>|z| |
|--------------------------------|-------------|----|
| 1st LLP/Assets Lag             | -0.6163     | 0.015** |
| 2nd LLP/Assets Lag             | -0.2149     | 0.348 |
| EBTP/Assets                    | 0.0252      | 0.418 |
| Loan Growth                    | -0.00001    | 0.538 |
| GDP Per Capita                 | -0.0003     | 0.141 |
| Size                           | -0.001      | 0.729 |
| Non-performing Loans/Assets    | 0.1509      | 0.036** |
| Tier 1 Capital/Assets          | 0.0675      | 0.007*** |
| Test for autocorrelation of order 2 | 0.254      |    |
Table 15 re-introduces the negative earnings dummy variable. The dummy variable remains insignificant at the crucial 1% and 5% levels, reinforcing the previous findings, especially given the earnings variable is now significant at the 5% level. The EBTP coefficient is now seen to be positive and significant at 5%.

Table 15: GMM regression including 2 lags of the dependent variable and a negative earnings dummy interacted with EBTP/Assets. Constant included but not reported.

|                      | Coefficient | P>|z|  |
|----------------------|-------------|-----|
| 1st Lag              | -0.5981     | 0.015** |
| 2nd Lag              | -0.2026     | 0.365 |
| EBTP/Assets          | 0.1572      | 0.03** |
| Loan Growth          | 0.0000      | 0.497 |
| GDP Per Capita       | -0.0003     | 0.101 |
| Size                 | 0.0018      | 0.552 |
| Non-performing Loans/Assets | 0.1575 | 0.025** |
| Tier 1 Capital/Assets| 0.0775      | 0.002*** |
| Negative Earnings Dummy * EBTP/Assets | -0.1928 | 0.064* |

Table 16 presents the results of the Wald test for each GMM regression. The p-values are all less than the generally used criterion of 0.05, enabling the rejection of the null hypothesis of the test. This indicates that the coefficients are not simultaneously equal to zero, concluding that incorporating all these variables produces a statistically significant improvement in the fit of the model.

Table 16: Wald test results for the GMM regressions.

| GMM test                                | Chi    | Prob>|Chi| |
|-----------------------------------------|--------|------|
| 2 lags                                  | 19.54  | 0.012 |
| 2 lags EBTP with negative earnings dummy| 23.00  | 0.010 |
7.1. Analysis

The income-smoothing proposition was not supported by either standard model as they both found the earnings before tax and provisions scaled by total assets as an insignificant factor. This suggests that the banks do not use loan loss provisions to smooth their earnings. The models including the negative earnings dummy (Table 13 and Table 15) add some depth to the analysis as they provide an asymmetric pattern of loan loss provisions. The results suggest that the banks do not make statistically significant changes to their provisions when they incur negative earnings, compared to when they generate a positive level of earnings. The models including the negative earnings dummy add some depth to the analysis as they provide an asymmetric pattern of loan loss provisions. The results suggest that the banks do not make statistically significant changes to their provisions when they incur negative earnings, compared to when they generate a positive level of earnings. The banks do not use up their capital during difficult periods to make provisions, signifying that the banks on average make enough provisions during the good times to cover the bad times. The positive sign on EBTP in Table 15 could suggest the banks withdraw from their statistical funds to cover any losses. This further supports the notion that the banks do not intensify economic downturns, possibly explaining why Islamic countries’ growth has not been heavily impacted by the crisis.

Moreover, including the dummy into the regression has consistently rendered earnings before tax and provisions significant, suggesting Islamic banks are more likely to income-smooth when the banks report negative earnings rather than when they report positive earnings is seen as a countercyclical. This has an important implication for Islamic banks as they rely on profit and sharing accounts to attract depositors. If the banks report heavy losses, then it means the depositors of these accounts will also suffer a loss. Consequently, the bank managers are pressured into interfering by smoothing the earnings to avoid large losses that would otherwise have to be passed on. Passing large losses onto the depositor base could push away customers, and more importantly, negatively impact the reputation of Islamic banks. The conflicting signs between the two models is an area worth researching further as earnings are clearly an important determinant considering the large coefficient.

The loan growth rate, significant at 5% in the fixed effects regression, has an undesirable negative coefficient that implies that banks have been imprudent during periods of rapid credit growth. More importantly however the coefficient is
extremely small and can be considered negligible. The negligible impact is confirmed by the variable not being significant at all in the dynamic model.

The regression also reports a negative coefficient for tier 1 capital significant at 10%, suggesting that loan loss provisions are used to reduce expected regulatory costs associated with violating capital requirements (Ahmed et al, 1999). On the other hand, the GMM regression reports a positive significant relationship between tier 1 capital and loan loss provisions, indicating Islamic banks do not use provisions for capital management. Critically, the tier 1 capital is significant (at 1%) in the dynamic model suggesting more emphasis should be given to this particular result. Undoubtedly, capital is an important determinant of loan loss provisions in both models and the conflicting results may be an area worth exploring further in future research.

The GMM regression displays a significant positive relationship between non-performing loans and loan loss provisions, unlike the insignificant result in the basic regression. Thus, the more overdue loans a bank has, the more it sets aside in provisions to cover the potential losses. This is what was expected based on previous literature and confirms it is an essential determinant because an increase in credit risk, due to higher non-performing loans, has a positive influence on loan loss provisions (Taktak et al, 2010, Misman and Ahmad, 2011). A positive coefficient for non-performing suggests Islamic bank managers are being prudent by protecting themselves from increases in credit and default risk by increasing provisions. They are therefore managing their risks appropriately, as an Islamic based institution would be required to do. Furthermore, the fact that both GDP and loan growth are insignificant, or at the very least minimal, refutes the idea Islamic banks are procyclical and supports the notion they behave prudently.

The coefficient for the lagged dependent variable in the GMM regressions is negative and statistically significant, revealing that a dynamic specification model for provisioning is recommended. The implication is provisions are systematically related in each period. The negative sign could suggest Islamic banks over provision for loans and then reduce the provisions as payments for those loans are made and the risks are better assessed during the first year, acting as a
countercyclical tool. Pérez et al (2011) found that when banks are offered a “transparent smoothing mechanism they stop smoothing profits in a non-transparent way”, which is consistent with the results found in this paper as the banks were not seen to income-smooth, yet they are known to dynamically provision as required by the AAOIFI.

To summarise the findings and analysis, the main determinants of loan loss provisions are found to be tier 1 capital, non-performing loans and size. The banks are evidently prudent and are not procyclical. The results reveal that the banks only income-smooth when they suffer negative earnings, acting as a countercyclical tool.

7.2. Comparisons to Existing Islamic Banking Research

The earnings before tax and provision results confirm those found by Ismail and Lay (2002), Abdul Rahman and Abdullah (2005) and Taktak et al (2010). They found that managers of Islamic banks practiced less earnings management than conventional banks. Quttainah et al (2011) adds that laws of Shariah “discourage opportunistic behaviors, which prevent Muslim managers in Islamic banks to practice earnings management”. This is contrary to discoveries made by Zoubi and Al-Khazali (2007) and Farook et al (2010) who found that Islamic banks increased their provisions as earnings improved, confirming the income-smoothing hypothesis. The findings obtained in this study suggest that Islamic bank managers are under less pressure to force smooth earnings due to the very different ownership structure of the banks. Unlike their conventional counterparts, Islamic banks, especially in the GCC, are owned by ultra-high net worth individuals, large institutions, ruling families and their national governments. This reduces the pressure on managers to consistently deliver larger profits as these institutions and individuals can diversify their portfolio and tend to hold positions for much longer. They are therefore not as heavily impacted by short-term fluctuations of a bank’s share price but rather more interested in the longer term performance. Quttainah et al (2011) adds that Islamic bank managers “focus not only on the maximisation of shareholders value, they are responsible to improve and assist in the socio-economic development of societies”.

60
Islamic bank’s naturally have more stable earnings due to their profit and sharing principle, whereby banks ‘invest’ in their clients rather than simply provide them with loans and leave them to deal with the risks. Furthermore, Islamic banks are encouraged to acquire physical assets on their own, preventing them from over extending their credit and, as such, their profitability. Conventional banks on the other hand “excessively [use] the credit and debt financing, which can lead to more financial risks” and can lead to higher earnings volatility (Taktak et al, 2010).

From the basic regression results (Table 12 and Table 13), the capital variable is the only significant independent variable that is consistent with other existing literature on Islamic banks (Farook et al, 2010, Taktak et al, 2010). Farook et al’s study found loan growth to be an insignificant determinant, which was similar to the dynamic model results. This highlights Islamic banking’s more risk-averse approach to lending and prudent behaviour towards their high loan growth rates compared to their conventional counterparts. Previous research on Islamic banks revealed a positive (rather than negative) relationship between loan loss provisions and a bank’s size (Othman and Mersni, 2012, Farook et al, 2010). The main reason for this difference is that they tended to use the natural logarithm of total assets rather than natural logarithm of total loans. Separately running the regression using total assets rather than total loans produces a positive coefficient, although the variable is no longer significant.

Both models confirm Farook et al (2010) and Taktak et al’s (2010) results who found GDP to be an insignificant determinant for loan loss provisions in Islamic banks. This verifies that Islamic banks are not procyclical, which is economically significant and explains why so much attention has been given to Islamic banks since the financial crisis.

7.3. Comparisons to Existing Conventional Banking Research

The earnings before tax and provisions variable is seen as a critical determinant for conventional banking provisions. A range of literature finds earnings have a positive significant relationship with loan loss provisions due to manager incentives to income-smooth (Cavallo and Majnoni, 2002, Laeven and Majnoni, 2003, Kanagaretnam et al, 2003, Bikker and Metzemakers, 2005, Bouvatier and Leptit,
2008, Davis and Zhu, 2009, Packer and Zhu, 2012). Islamic banking managers clearly face different pressures and incentives to their conventional counterparts since earnings are found to be an insignificant determinant. Laeven and Majnoni’s (2002) study found conventional banks made “statistically significantly higher provisions” when they incurred losses than when they generated positive earnings, highlighting that they do not make enough provisions during good times to cover more difficult microeconomic and macroeconomic conditions.

In comparison to the results in Table 12, Laeven and Majnoni (2002) found conventional banks have a much larger negative coefficient for loan growth. They reported a coefficient of -0.158 significant at 5%, compared to my coefficient of -0.00005. This demonstrates the difference in the level of imprudent behaviour by the banks during periods of rapid loan growth. A negative coefficient implies the banks reduce their provisions as they grow their loan portfolio. Islamic banks, by their very nature, are setup to be less risky due to the way they conduct business. To further emphasis their different approach to provisioning, Farook et al’s (2010) study found loan growth to be an insignificant determinant for Islamic banks, whereas it was negatively significant (coefficient of 0.01) for the regression that involved conventional banks. Supporting Farook et al’s (2010) results, other studies that included loan growth as part of their model ended up with a negative significant coefficient for loan growth (Cavallo and Majnoni, 2002, Laeven and Majnoni, 2003, Craig et al, 2006, Davis and Zhu, 2009, Packer and Zhu, 2012). For non-performing loans, the studies found that conventional banks tend to have a positive significant relationship, similar to Islamic banks. The higher the number of non-performing loans, the more provisions the banks made. Nevertheless, it is important to note that most Islamic banks are still considered small to medium sized and are growing an average of 33% a year in the selected sample, which may explain their emphasis on being cautious. In addition, given their recent entry and expansion into various banking activities, both national and international regulators are paying extra attention and scrutiny to their performances.

In Packer and Zhu’s (2012) study on conventional banks in Asia, they attained an insignificant bank size variable (which uses loan to assets ratio). Bikker and
Metzemakers’ (2005) study found a positive significant coefficient for banks in the United States, Italy and Spain, but a negative significant coefficient for banks in Japan, suggesting an uncommon regulatory stance towards bank size. It seems regulators do not agree on how bigger banks should manage their provisions. Some countries seem to require them to hold more provisions whilst others allow them to hold fewer provisions given their size. The results for the Islamic banks in this sample suggest the banks with more total loans get away with holding fewer provisions. Islamic regulators may allow this due to the prudent behaviour with regards to the way Islamic bank managers handle loan growth and non-performing loans. Additionally, Islamic banks are required to hold physical assets against many of their loans, which reduces the overall risk as these assets (such as the houses or cars for mortgage and car loans respectively) can be sold to raise capital if the borrower were to default.

According to a large set of existing literature on conventional banks around the globe, a negative relationship between capital and loan loss provisions was found, supporting the use of loan loss provisions for capital management (Bikker and Metzemakers, 2005, Craig et al, 2006, Bouvatier and Leptit, 2008, Packer and Zhu, 2012). According to the outcomes from the two models, Islamic banks do not use loan loss provisions for the purposes of capital management, which sets them apart from their non-Islamic counterparts.

Laeven and Majnoni (2002) reported a significant GDP coefficient of -0.077 for their sample. Bikker and Metzemakers (2005) found the same to be true for his sample of American, European and Asian banks. Further, Packer and Zhu (2012) confirmed their results for banks in Asia. This proposes that conventional banks raise their provisions during economic downturns. They therefore exacerbate downturns as they pull capital from the economy to cover potential loan losses by raising provisions significantly. U.S. banks, for example, were found to have a coefficient of 0.299 (Laeven and Majnoni, 2002), which shows the strength of the procyclical nature of banks in the country. This is very different to Islamic banks where GDP growth was found to be an insignificant determinant for loan loss provisions, confirming that Islamic banks fare better during economic downturns. Conventional
banks are consequently more heavily impacted by the financial strength of firms, households and the overall economy suggesting they focus less on the long term macroeconomic view in their risk management.

With regards to the lagged dependent variables, Packer and Zhu (2012) found it to be positively significant for banks in China, India and Southeast Asia suggesting “a certain degree of persistency in the time series of loan loss provisions”. Japan was found to have an insignificant lagged coefficient, meaning a relationship does not exist between one period of provisions and the previous period. Bikker and Metzemakers (2005) found that both Japanese banks and banks in Luxembourg did not dynamically provision either. A positive coefficient implies that conventional banks do not make enough provisions at the start and slowly add to their provisions as they recognize losses following a default event.

Laeven and Majnoni (2002) confirm that the 1,419 conventional banks in 45 countries are “slow in adjusting” their provisions to their optimal level over a multiyear horizon as both the first and second lags were found to be positively statistically significant. Table 14 and Table 15 highlight that Islamic banks are not as slow as conventional banks in reaching this optimal level as only the first lag is significant, which is economically substantial as it means they are able to correct their level of provisions at a faster pace.
8. Conclusion

This paper set out to critically evaluate and ascertain the determinants behind loan loss provisions specifically for Islamic banks, and to then compare them to the determinants of loan loss provisions for conventional banks, as found by existing literature. This paper sought to analyse the reasons for the differences between the two types of banks in terms of their provisioning by taking into account the varying business objectives and methods. The unique foundations of Islamic banks, and the fact they have avoided the financial unrest largely unscathed compared to many conventional banks around the globe, has brought about renewed attention and interest into the way they conduct business.

The literature review has found a large range of possible determinants for various time periods, both before and after Basel I and Basel II. The first determinant, income-smoothing, was found to be one of the most significant factors. Managers were seen to be subject to large reputational and regulatory pressures to ensure smooth bank earnings. Furthermore, Islamic bank managers were seen to face an additional pressure to smooth earnings to ensure depositors were not impacted by heavy volatility in earnings considering both losses and profits were shared. A second important determinant was capital. The use of loan loss provisions to manage capital was seen a valuable tool that both Islamic and conventional banks made use of. In addition, two final determinants were discovered that played a vital role in provisioning, which were the macroeconomic conditions and credit risk. A large set of literature considered conventional banks to be imprudent and procyclical, exacerbating economic downturns. On the other hand, the Islamic banks were found to be prudent and not as heavily impacted by the economic environment, explaining how and why they largely avoided the financial unrest. It is essential to note that there are contrasting views and results for each determinant, with varying implications based on their findings.

The sample used in this paper consisted of an unbalanced panel of 57 Islamic banks operating in 15 countries, with 82.5% coming from the GCC, Jordan and Malaysia. Two main regression models were used. The first, a basic OLS regression with fixed effects included 7 independent variables. These are earnings before tax and
provisions, loan growth, GDP per capita growth rates, size, non-performing loans and a year dummy. The year dummy was included in order to establish whether or not Basel II and various other regulator enhancements have had an effect on the determinants of loan loss provisions since the financial crisis. The second, a GMM Arellano-Bond regression included 2 lags of the independent variable. In addition, a separate regression was run for both the OLS and the GMM models, including a negative earnings dummy interacted with the earnings variables, in order to ascertain if the behaviour of provisioning changed during periods consisting exclusively of negative earnings.

The empirical analysis reinforced some of the literature on Islamic banking while simultaneously discovering distinctions to the conventional banking literature. The results suggest Islamic banks only income-smooth during periods of negative earnings, as depicted by the significant earnings before tax and provisions coefficient when a negative earnings dummy was included. The dummy variable highlighted Islamic banks in general do not make statistically significant changes to their provisions even if they smooth their income during such periods, emphasising their prudent and cautious approach to provisioning. This is not the case with conventional banks; they make significant alterations to their provisions during periods of negative earnings, as reported by Laeven and Majnoni (2002).

The GMM regressions found tier 1 capital to have a significant coefficient although the direction was inconsistent between the two models. The first lag of the dependent variable was found to be significant suggesting a dynamic model is recommended and the banks take a year at most to reach their optimal level of provisions, compared to conventional banks that take at least 1 year (Laeven and Majnoni, 2002, Packer and Zhu, 2012). Non-performing loans were seen to be significant in the regressions that involved the dependent variable lags, which was expected considering economic and theoretical intuition, implying credit risk is a critical determinant. In addition, loan growth and GDP were found to have negligible coefficients, suggesting Islamic banks are, at most, only minimally procyclical and underpin the banks’ prudent behaviour thus setting them apart from their conventional counterparts and ensuring they do not cause a drag on the
economy. This could partly explain why the growth in Islamic countries has been able to recover much more quickly than the western world where many banks have been deleveraging and writing off large losses.

Overall, the research concludes the key determinants of loan loss provisions for Islamic banks are tier 1 capital, non-performing loans and size. The banks evidently are not procyclical and appear to provision prudently. The results prove that the banks avoid income-smoothing except when they suffer negative earnings, possibly to protect PLS accounts. Interestingly, provisioning behaviour does not appear to have changed significantly over the last decade as established by the insignificant time dummy. The implications of the findings are that Islamic banks are not a drag on the economy, at the very least relative to conventional banks, during downturns.

This dissertation has contributed to existing research in Islamic banking loan loss provisions by finding the vital determinants and exploring the distinctions between Islamic banking and conventional banking provisioning methods and behaviour. The research has shown why Islamic banks have had such extraordinary growth during the last decade, considering the banks appear to be far less procyclical and far less damaging to the overall economy during economic downturns. Islamic banks appear to be more prudent than their counterparts and this is emphasised by the way they have dealt with the rapid increase in their assets and the way they have managed their credit risks. This paper is unique in the sense it has focused on Islamic banking loan loss provisions during the period 2002-2012 using extensive empirical models and methodology that has not been tested before. The research has increased the academic understanding of their provisioning behaviour and the possible managerial incentives and pressures behind their decisions.

The limitations of the methodology and research start with the sample size. Although there are far fewer Islamic banks than conventional banks, a sample bigger than 57 banks would provide more confidence to the results and would portray the bigger picture in the industry. Notably, the industry is still developing and many of the banks have only recently begun to publically release frequent and reliable annual data. Considering the industry’s growth and the fact it is still in the process of maturing, the banks’ behaviour may change as their regulatory
framework and their business develops. Furthermore, this paper is limited by the fact that it does not perform any direct quantitative tests on conventional banks and instead relies on the substantial literature that exists.

Noticeably, this research is constrained by the fact it relies solely on quantitative data; it does not conduct any qualitative research, such as interviewing the bank manager’s to get a deeper insight into their provisioning conduct. Moreover, political interference was assumed to be non-existent when analysing the various data sets. GDP statistics, for example, could be influenced by the governments to achieve various political objectives. Another limitation regarding the data set is that there are currently only 3 years of statistics post-financial crisis and post Basel II compliance; therefore their impact on provisioning may not yet be fully noticed.

The final set of limitations is related to the models used. Including further independent variables or different proxies for the various variables, such as credit risk and capital management, may reveal further determinants or may reduce the significance of certain determinants. For example, using unemployment rates instead of GDP growth per capita may highlight a more prominent relationship between the macroeconomic environment and loan loss provisions and is an area worth exploring in future research. Including other variables would also boost the fit of the model; thus, increasing the R².

Overall, the empirical results have raised interesting questions for further exploration. The results have highlighted that Islamic banks income-smooth during periods of negative earnings. It is highly likely that this is linked to the profit-and-loss sharing arrangements. Whether provisioning decisions are made separately or whether they are connected to profit distribution management is certainly worth exploring. The results also found contradictory signs on the tier 1 capital coefficient and are worth exploring further in order to ascertain whether or not Islamic banks use loan loss provisions for capital management.
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10. Appendix

Table 17: Central Bank of Qatar’s loan classifications and provision requirements (World Bank, 2000)

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Loans that are 90-180 days past due.</td>
<td>0</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Loans that are 180-360 days past due.</td>
<td>25</td>
</tr>
<tr>
<td>Bad</td>
<td>Loans that are over 360 days past due.</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 18: Malaysia’s Central Bank loan classifications (World Bank, 2000)

<table>
<thead>
<tr>
<th>Default Categories</th>
<th>Description</th>
<th>Provision level required (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-standard loans</td>
<td>Loans that are 90-180 days past due.</td>
<td>20</td>
</tr>
<tr>
<td>Doubtful loans</td>
<td>Loans that are 180-365 days past due.</td>
<td>50</td>
</tr>
<tr>
<td>Bad</td>
<td>Loans that are over 365 days past due.</td>
<td>100</td>
</tr>
</tbody>
</table>

Appendix note 1

0.2086*0.0767=0.016 – standard deviation is obtained from Table 10 on page 48.

Table 19 presents the basic GLS regression results with random individual-effects rather than fixed effects. The results here clearly change with tier 1 capital becoming significant only at the 10% significance. This could be down to the inconsistent and inefficient results of the random effects regression for this sample as depicted by the Hausman test.
Table 19: Basic GLS regression with random effects. Constant and year dummies included by not reported.

|                        | Coefficient | P>|z| |
|------------------------|-------------|-----|
| EBTP/Assets            | -0.039      | 0.120 |
| Loan Growth            | -0.00001    | 0.406 |
| GDP Per Capita         | -0.00038    | 0.147 |
| Size                   | -0.001      | 0.546 |
| NPL/Assets             | 0.004       | 0.945 |
| Tier 1 Capital/Assets  | -0.023*     | 0.071* |
| R²                     |             | 0.120 |
| Hausman test           |             | 0.0018*** |
| ( Prob>chi2 value)     |             |       |