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Islamic Banks and Profitability: An Empirical Analysis of Indonesian Banking

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By

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Abstract

This paper provides an empirical analysis of the factors that determine the profitability of Indonesian banks between the years 2006-2012. In particular, it investigates whether there are any significant differences in terms of profitability between Islamic banks and commercial banks. The results, obtained by applying the system-GMM estimator to the panel of 54 banks, indicate that the high bank profitability during these years were determined mainly by the size of the banks, the market share as measured by the industry concentration index and the interest rate levels. In addition, we find that the financial structure as measured by the customer deposits to the total liabilities ratio and the annual customer deposits growth rate do not affect banks' profitability. On the other hand, the macroeconomic determinants such as GDP and inflation, with the exception of interest rate, have no influence on bank profitability. Finally, our study reveals that there are no significant differences in the profitability of Islamic and commercial banks. These findings apply only when using return on assets (ROA) as the profitability measure.

***Key words*:** Banks' Profitability • Commercial Banks • Indonesia • Islamic Banks

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Introduction

In the last three decades the Islamic banking industry has grown continuously across the globe. According to Eedle (2009), some policies have been initiated to foster and expand the growth of the Islamic banking sector in Indonesia. However, despite this progress, there are potential setbacks due to the threats posed by conditions in business/economic developments. In addition, the competition and activities from commercial banks are a constant threat to the survival and profitability of Islamic banks. This is because most commercial banks have been established long before the establishment of several Islamic banks. Thus, there is no guarantee for Islamic banks in Indonesia to maintain high profit throughout any period of time in comparison to the commercial banks. In this regard, this research is motivated by this factor and aims to provide an empirical analysis into the factors that determine the profitability of Indonesian banks between the years 2006-2012.

The main objective of the study is to investigate whether there are any significant differences in terms of profitability between Islamic banks and commercial banks in Indonesia. Even though several studies have been carried out on Islamic banks in Indonesia, there is little research in terms of comparing its profitability with commercial banks in the same country. Most of the previous research has focused on how Islamic banks are financed in different countries. For example, studies by Rifki (2010) and El-Gamal (2000) provides information for those interested in the financing of Islamic Banks in UK and America respectively. Also, Colditz (2009) and the African Development Bank (2011) provide information on how Islamic banks are financed in Germany and North African countries respectively. However, it is important to note that there is a difference between the profitability of the banks and how they are financed in order to understand the outcome of this study. As a result, this paper does not investigate the financial regulations and other aspects of the bank's financial management, rather it emphasizes the profitability aspect, in particular the differences between the Islamic and the commercial banks in Indonesia. It is important to stress that this paper is not about Islamic Finance, neither does it look at the religious dimensions of Islamic Banking.

This dissertation is set out under four sections which are further divided into subheadings. The first section is the Literature Review which gives an overview of Indonesia as a country, its economy, banking industry, bank regulations and financial crises that have affected

Indonesia. Thus, several aspects such as some facts about the economy, the gross domestic product of the country and the sector breakdown are addressed in this section. Subsequently, we discuss some of the existing bank regulations in Indonesia, the general rules and the procedures within the country's banking industry including some of the Basel regulations as well. This is followed by an assessment of the banking system together with the various types of banks in Indonesia. Consequently, this part of the paper highlights the differences between Islamic and commercial banks, including a review of the banking data in the country. Furthermore, the effects of the financial crises on the economy and banking industry are assessed. This is followed by examining some of the gaps in past studies, and a final summary of the section.

The second section of the paper reviews some of the Empirical Studies that have been done in the field of Islamic banks versus conventional banks, as well as the determinants of profitability. Among others, Merchant (2012) and Iqbal (2001), investigate the differences between Islamic and conventional banks in relation to their profitability. The objective of this part of the paper is to look at some of these studies in more detail in order to understand what methods should be used for investigation.

The third section shows the Data and Methodology used. In this section, the panel data set is presented as the tool used to analyse the determinants of profitability. Also, the definitions of the variables used are mentioned. Moreover, the study uses descriptive statistics to describe the main features of the data obtained. The econometric model that has been used to answer to the question about the determinants of banks' profitability is also discussed in detail. This is followed by the presentation of the significance tests and a short discussion of its implications. The tests are designed to find out whether the determinants have a statistical influence on the selected performance measure. The third section concludes with a series of other post estimation tests to investigate the validity of assumptions and the overall fit of the model considered in this study.

Finally, the fourth section (Results) presents the main results of this study. The factors that affect the Indonesian bank's profitability are discussed, and whether there are any differences between Islamic and conventional banks. This part offers an insight into understanding which type of banks are doing better and the reasons for these developments.

1. Literature Review

1.1 Introduction

The Literature Review is based on the analysis of the Islamic banks and profitability in the context of Indonesia. For this purpose, the discussion is based on the underpinning of Indonesia and its economy, bank regulation in Indonesia, the banking industry and the financial crisis in a critical manner. Looking at these points will help to break down the research.

1.2 Indonesia and Its Economy

In the early 60s the economy of Indonesia deteriorated drastically as a result of huge political instability embedded within a young and inexperienced government and economic nationalism that marked severe poverty and hunger. The economy was further in chaos with high inflation, negative investments and poor and crumbling infrastructures (Craig et al., 2011). The new policies introduced in the late 60s brought some stability by bringing the inflation down and stabilising the currency. In the mid-60s, Indonesia was the only Southeast Asian country that was a part of OPEC and the high oil prices marked high growth and development that further strengthened the economy in a positive way (De Mello, 2008). However, declining oil prices in the early 80s slowed the overall economic growth and development in the country. At the same time, a wide array of policies were introduced to facilitate exports along with deregulating the financial sector (Goeltom, 2007). The manufacturing sector of Indonesia has marked a significant growth and development that also attracted a good amount of foreign direct investment in the early 2000s. It was also found that the public felt indebted mainly because of the mismanagement of the financial sector put extra pressure on the economy making the overall progress a bit slow and insignificant in the late 2000s. Overall, it can be said that the history of the country is quite appealing as it has emerged from the darkest shadows of hardships to become the frontrunner of an exemplary South East Asian economy (De Mello, 2008).

Indonesia has the largest economy in Southeast Asia and is set to have the seventh largest economy in the world by the end of 2030 (World Bank, 2011). The country has huge

prospects in terms of growth and development mainly due to the availability of natural resources, that at one point in time facilitated impressive growth and development in the forms of oil, gas business and exports. The country faced immense pressure and challenges in 1997 suffering from a financial crisis. Due to the thoughtful planning and judicious economic reforms, the government was successful in driving the economy in the right direction through the debt restructuring process (Coordinating Ministry for Economic Affairs, 2011). Since 2006 the country has witnessed a steady growth of 6% annually that is largely considered quite impressive. The government has planned to accelerate this growth to 7% by the end of 2030 and for that purpose it is important to maintain the domestic consumption along with increasing the exports volume to emerge as a developed and successful economy in the coming years (CMEA, 2011).

The country faces challenges in the context of consumer services where there are challenges to productivity growth, complex regulation of financial services, poor transport infrastructure and barriers to entry (CMEA, 2011). There is no doubt that the financial services are quite easy to avail when it comes to large organisations. However, small and medium scale organisations have been suffering, resulting in concerns that need to be addressed (CMEA, 2011). Undeniably the country is growing at a rapid pace with a high level of domestic consumption that is expected to increase in the coming years. However, for this purpose the country needs to maintain a high level of production that will support a high level of domestic consumption. Overall, it can be said that the country has positive aspects in terms of growth and development with adequate sources and resources, and with a stable government the country is expected to become a favourite economic destination in coming decades (World Bank, 2011).

1.2.1 Facts about Indonesia's Economy

Indonesia has the largest economy in Southeast Asia and is considered the fastest growing economy in the world. Indonesia is also a member of the G-20 major economies and is considered as the newly industrialised nation. However, according to Cetorelli (1999) the government's ability of attracting foreign investments into the country depends highly on the ease of doing business and the political stability in the country. This is very true since unstable political situations, local taxes and labour problems can increase the cost of conducting business in Indonesia. Additionally, Craig et al. (2011) suggest that the

government is considering a way of collecting money from citizens in relation to the circumstances of individuals to pay particular amounts. Furthermore, according to Darini (2012), this is similar to how power is distributed through the centralisation of management, as well as the decentralisation of corruption.

However, De Mello (2008) mentions that the level of corruption could be less during certain periods (pre-decentralisation), a failure of reducing the transaction costs because of the additional costs of bribing increasing number of officials. Subsequently, there is always an increase in business uncertainties leading to an unpredictable investment climate that is not conducive enough as well. They also emphasise that, even though it is important, investment climate explains the Indonesian industry's performance but should not be over-emphasised. As Cetorelli (1999) argues, despite the necessity of improving the investment climate, it not a condition which is sufficient.

According to Darini (2012), a study conducted showed that Japanese companies performed worse than that of the Korean companies in Indonesia even though they both faced similar problems like corruption, lack of adequate infrastructure, high cost in the economy and impediments related to labour. The result gave evidence to the fact that the Korean companies were performing better due to a supply chain management system which was more efficient. However, according to Hall and Stone (2010), despite a bad perception in relation to access to finance, quality of infrastructure and bad land procurement, there was still improvement in some elements of microeconomic indicators in the business environment with respect to bribing local officials and harassment visits, as well as approval times for FDI. As a result they suggest that the deterioration of investment growths at certain periods was driven mainly by macroeconomic instability from worsening the investment climate itself.

Moreover, Indonesia has a market economy that means the government plays an important and significant role of owning enterprises. The government and state own more than one hundred enterprises and can be considered the prime force in controlling and managing the economy in a significant manner. A number of countries and investors know that Indonesia boasts natural resources and robust economic reforms that are making rapid expansion in the field of construction, manufacturing and services. Additionally, with high domestic consumption and economic growth, the country is expected to become the seventh largest

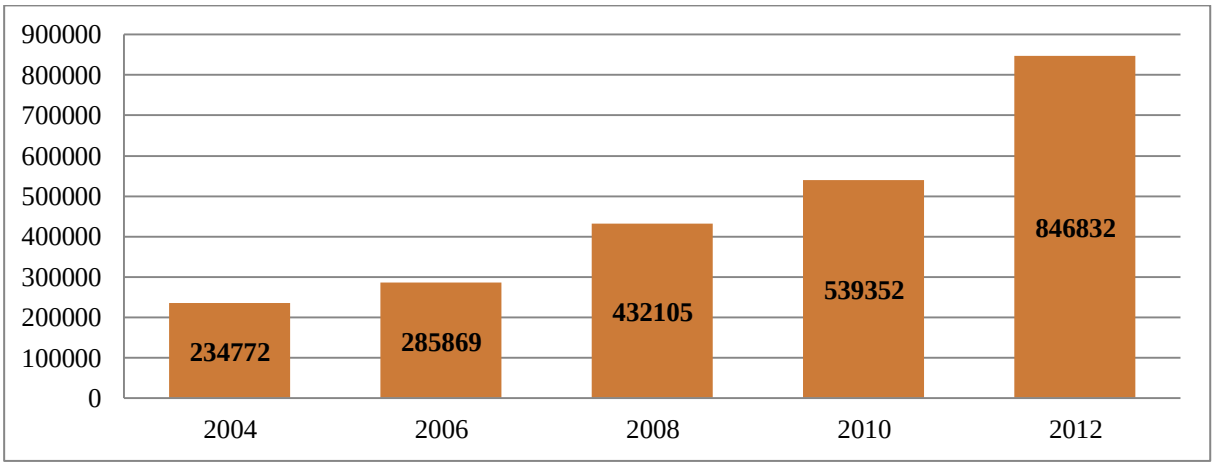
economy in the world by the end of 2030 leaving the United Kingdom and Germany aside and thus showing significant improvements (BBC News, 2013).

Indonesia has been an attractive economic destination mainly because there has been a shift from the agriculture sector to different sectors in terms of creating economic value and has accounted for more than 60% of the country's economic growth in last few years (World Bank, 2011). Furthermore, Indonesia has also grown mainly because of the domestic consumption rather than manufacturing or exports showing high levels of future growth and development. By 2030, Indonesia will have 90 million people to the consumption class, being in the same league of India and China. There is no doubt that the financial sector has played a major role in reforming and revamping the structures of many sectors by offering financial help through lenient but stringent financial policies, and credit for this goes to the well thought policies of the government (CMEA, 2011). The economy grew by 6.2% in the year 2012, down from 6.5% in the year 2011 and is growing at a rate of 6.1% in the year 2013. However, this slowness has been balanced by high domestic consumption showing promising aspects (CMEA, 2011).

1.2.2 GDP Graph

There has been a rise in the GDP every year. In fact, the GDP has increased favourably, signifying the growth and development of the country and can be considered as a positive sign.

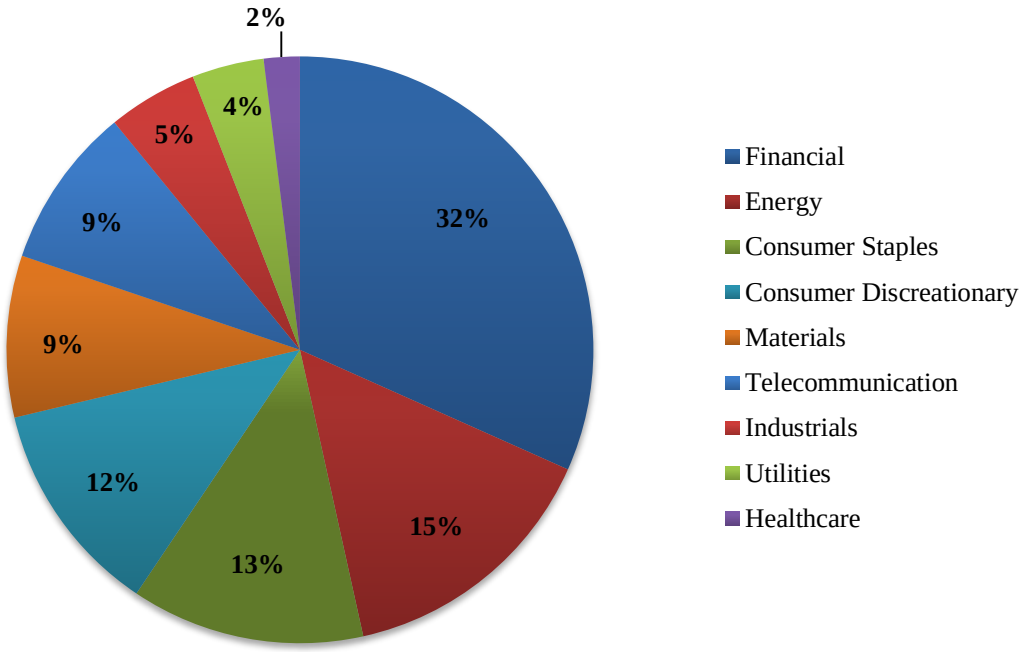
Figure 1
Indonesia GDP Billions of US Dollars



Source: Trading Economics, Indonesia GDP (2013)

1.2.3 Sector Breakdown

Figure 2
Indonesia Sector Breakdown



Source: Bonte and Gopinath **(2011)**

As per the information, it is very much evident that the financial sector constitutes the major percentage in terms of the sector share, followed by Energy and the Consumer sector in the form of the manufacturing. A low percentage of industries and healthcare can be considered as a problem that will require attention and initiatives in the coming years to strengthen the economy. Furthermore, the growth and development of the Indonesian economy has mostly been fuelled by the financial and energy sectors in last few years. Prior to the 60s, the growth and development of the economy was very much dependent on the other sectors such as industrials, oils and later with the availability of more opportunities, sources and resources, the economy witnessed sustainable growth and development. The Banking sector has also played an important and crucial role in shaping the structure of the economy and making it easier for small and medium organisations to fund their sources and resources (Trading Economics, 2013).

Though, GDP is often considered as the real face of any economy, highlighting its economic performance. Additionally, observing the rise in the GDP of Indonesia, it can be believed that there has been a significant improvement in the last decade making it highly impressive economy in the world. The government has been successful in regulating the banking and financial industry along with making it feasible for a number of industries and making economic sources and resources available. Additionally, this has also helped in creating an impression over foreign institutions in terms of making them rethink the foreign direct investments (Trading Economics, 2013). Overall, it can be said that the banking and financial sector has played an important and decisive role in enhancing the worth of the Indonesian economy in a significant manner in the global economy. In this regard, the next part of the discussion presents an overview of the banks regulation in Indonesia in a critical manner that will further help in ascertaining the importance of the banking industry.

1.3 Bank Regulations in Indonesia

According to the Bank of Indonesia (2013), for some years, the banking industry in Indonesia has progressed smoothly. For example, in 2009 there was a recovery from the global crises of 2008 which had a huge impact on the banking industry in Indonesia.

Table 1
Indonesian Banking Industry Performance Ratios 2005-2009

Ratio %	2005	2006	2007	2008	Nov. 2009	Dec. 2010
Operational Cost to Operational Income	89.5	86.98	84.05	88.59	86.55	86.63
Return on Asset	2.55	2.64	2.78	2.33	2.61	2.6
Net Interest Margin	5.63	5.8	5.7	5.66	5.54	5.56
Non-Performing Loan	7.56	6.07	4.07	3.2	3.82	3.31
Loan to Deposit	59.64	61.56	66.32	74.58	73.67	72.88
Capital Adequacy	19.3	21.27	19.3	16.78	17.08	17.42
SBI* Amount to Total Loan	7.8	22.6	20.35	12.73	14.27	14.75

**Bank SBI Indonesia – a subsidiary of State Bank of India*

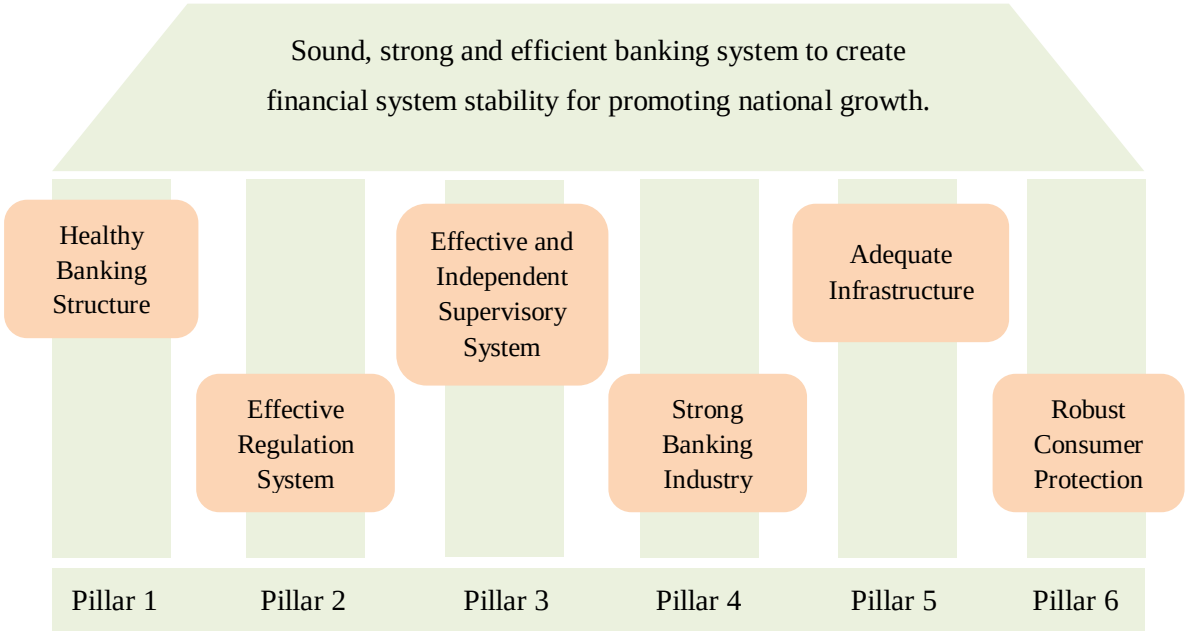
Source: Bank of Indonesia (2013)

The Bank of Indonesia (2013) also mentions that extreme reforms have changed the financial sector of Indonesia which is mostly controlled by the government into a competitive credit

source at market deregulations. The objective of this early deregulation step was to essentially make the country's banking system more modern in order to cope with the demands of the public. Additionally, Trading Economics (2013) suggest that there was a continuation of banking deregulations as the BI and government issued Pakto 88. The policy package changed the industry as it became the yardstick of all policies of banking in the country. Issued in the early 1990's, the 1991 February policy package included regulations that required banks to be prudentially managed. Furthermore, the bank of Indonesia (2013) suggests that banks were required to operate within the principles of self-assessment and self-regulatory through Pakfeb.

As stated by the Bank of Indonesia (2013) this policy package resulted in giving credit growth to banks over a short period of time and surpassed the level for providing huge pressure on efforts to control monetary issues. Also Trading Economics (2013) mentions that the current crises have sent a warning signal to the banking industry to strengthen and improve the stability of their financial system; as such, some measures should be taken to prevent a repeat of previous mistakes. Additionally, Shimada and Yang (2010) note that certain initiatives have recently been introduced in order to maintain financial stability in the industry. For example, among some of these initiatives is the Indonesian Banking Architecture (IBA). Below is a diagram illustration of the IBA and how it works.

Figure 3
IBA Six Pillars



Source: Shimada and Yang (2010)

Figure 3 shows a basic framework which is a comprehensive view of the banking system in Indonesia, it also outlines the structure and direction, as well as the banking industry over the next couple of years. In addition, Berg et al. (2004) stated that bank regulations are a form of government regulations that are required to fulfil certain requirements, objectives and guidelines in a required manner. The regulatory structure helps in creating transparency among the banking and financial institutions and also among people with whom business is conducted. Usually, the banking regulations are imposed by the central bank of different countries where the government has full control over the regulatory principles and objectives (Berger and Humphrey, 1997). With regards to Indonesia, the Central Bank of Indonesia (Bank Indonesia) regulates the banking structure where other banks have to follow the prescribed guidelines in a uniform manner. Craig et al. (2011) stated that the primary function of Bank of Indonesia is to ensure the proper functioning of the banking system in the public and banking interest. However, not every bank avails similar support and cooperation from the government.

Banking regulations are in the form of credit bureau to support task implementation as the banking and monetary authority, implementation of money laundering to make sure that financial terrorism is controlled, stating the minimum capital requirement for commercial banks, regulations regarding the business functions of banks as in how banks operate their businesses, use of standard methods and calculation to have minimum capital to avoid the market share, and implementation of risk management tools to safeguard banks against housing and business loans in the long run. The Bank of Indonesia also increases and decreases the capital ratios to tighten the flow of capital among banks. Moreover, the bank also has the power to raise or limit the interest-rate that plays a significant role in the borrowing and lending of money in the financial and social environment (Bank of Indonesia, 2013). Usually, the banking regulations are proposed to serve the interest of the ‘common man’ along with strengthening the banking structure and enhancing the effective flow of capital in a systematic manner.

1.3.1 How Banks are Regulated.

According to Berg et al. (2004), the reason why banks are important in an economy is due to the integrity, efficiency and stability of the banking system. Hence it is a pre-condition for banks to play a vital role in the economy. Furthermore, the dynamics of the banking industry is such that other healthy banks might be affected rapidly when one bank fails. In terms of supervision, they further highlight its importance to the government of any country. Berg views supervision as a method through which banks are monitored to make sure they carry out activities in a sound and safe manner, in relation to the rules, laws and regulations of the country.

Additionally, Shimada and Yang (2010) noted that a healthy banking industry is achieved through effective supervision of banks. Having different point of view, Darini (2012) states that regulating a bank involves applying a set of agreed behaviours or specific rules which are enforced by an external agency or the government or self-imposed by implicit or explicit agreements within an industry which restricts business operations and activities. Furthermore, he states there are four main bank regulatory objectives, namely the soundness and safety of financial institutions, the system stability and to ensure the protection of customers against certain hazardous behaviours of some private financial institutions. The last objective he notes is to maintain consumer confidence in the financial system and the integrity of financial markets and institutions.

Further, according to Shimada Young (2010), in order to determine the soundness of a bank in Indonesia, a qualitative assessment of several aspects which affects the performance or condition of a bank is undertaken. In addition, Berg et al. (2004) mentions that a qualitative and quantitative assessment of factors such as management, quality of asset, capital, liquidity, earnings and market risk (CAMELS) can also be assessed. In defining quantitative assessment, Darini (2012) describes it as a way of assessing the development, position and a bank's projected financial ratio. He defines qualitative assessment as a way of assessing the factors which supports risk management, quantitative assessment and bank compliance. Shimada and Young (2010) further suggest that these are the measurements which have been implemented since 1991 under the decree of directors of Indonesia bank.

Law number-7 of 1992 on banking as amended by law number-10, 1998, regulates banks in Indonesia (Wasserman and al., 2008). Banking laws and regulations are applicable to all sorts of banks and each bank needs to have an approval of operation from the central bank in order

to operate in and out of the country (Darini, 2012). The Bank of Indonesia assumes supervisory and regulatory functions in the banking sector. Moreover, the Bank of Indonesia also grants license to banks along with supervising their financial performance and activities in a critical manner. It needs to be mentioned that banks have to operate as per the conditions stated by the central bank, in this regard interest rates plays an important role. Cetorelli (1999) believed that the interest rate being imposed by the central bank of Indonesia on other banks is quite high and does not allow them to offer lucrative financial products and services to a number of customers. Berg et al. (2004) further added that in the last few years the local banks of Indonesia have been severely affected by the financial crisis and the major focus of the central bank is to strengthen the local banking system.

In mid-2001, the Bank of Indonesia proposed a limited share ownership suggesting that few people or groups could not influence the banking structure or dynamics. This restriction was part of the financial policy acting as a shield to protect the banks of Indonesia from the international financial crisis along with reducing the impact and influence of foreign banks in the local banking industry in terms of controlling the market dynamics and affecting them in a desired manner (Bank of Indonesia, 2013). In addition to reviewing the policy of ownership, the central bank is also reviewing the licensing policy where the bank will propose multiple licenses formats rather than depending on a 'one size fits all' approach. Cetorelli (1999) supported this view by saying that assessing the financial statements and performances of other banks in order to assess their fair practices and business aspects is a wise approach, but should be maintained for every bank rather than discriminating between banks.

1.3.2 Regulation Rules

In order to achieve the objectives of the regulation rules the Central Bank of Indonesia has adopted international banking standards. One of the major concerns of the Central Bank of Indonesia is to revamp the appeal of local banks by strengthening their core infrastructure and services in an exemplary manner (Darini, 2012). Moreover, the bank also proposed to follow the standards of Basel. Regulation rules also involves initiatives for the active role of stakeholders that will help in enhancing the policy making process in a positive way. The Central Bank of Indonesia has also proposed a change in the licensing rule where licenses will be issued to different banks as per their infrastructure and banking products and services. Auditing is one of the most important aspects of any banking regulation as it allows

supervising and assessing the business practices of others in a rational and practical manner. Auditing also helps in assessing fair business practices and for ethical rules to be followed (Bank of Indonesia, 2013).

Regarding the Central Bank of Indonesia, outsiders are appointed as auditors to assess the financial performance of other banks and associate it with the prescribed guidelines. This also helps in monitoring the overall performance of banks in a significant manner (Bank of Indonesia, 2013). However, Craig et al. (2011) stated that auditors may not highlight the current practices of the banks and scope for manipulation and falsification of data. Regulation rules are mainly associated with the idea of enhancing the fair business practices of banks along with controlling and monitoring them by using financial policies and frameworks. Cetorelli (1999) stated that reserve ratios, interest rates and bank rates are used to regulate the inflow and outflow of cash and capital, while financial policies and auditing tools are aimed to assess and monitor the impact and acceptance of regulatory measures in a critical manner. However, these are aimed at every bank irrespective of the nature and size of the bank and thus offer little value.

In terms of regulating banks health assessment systems, Darini (2012) indicates that under the Bank Indonesian regulation Number 6/10/PB1/2004, the soundness of banks involves assessing the factors of capital (quality of assets), profitability (earnings), management, sensitivity to market risk and liquidity. Additionally, Bank of Indonesia (2013) suggests that assessing the factors of capital include composition, adequacy and future trend projection of capital. It also includes the bank's ability to provide cover for troubled assets and the ability of the banks to provide the required needs for additional capital from earnings, the capital plan of the banks to assist growth of businesses, accessing capital sources, financial performance and shareholders to increase the capital.

According to Cetorelli (1999), assessing the quality of assets includes concentration of credit risk exposure, asset quality, adequate allowance for earning assets, development of earning assets, adequate procedures and policies, reviewing internal systems, the handling and performance of earning assets and the documentation of systems. Accordingly, Darini (2012) also mentions that in Indonesia, assessing the factors of management include an assessment of risk management and public management practices as well as compliance with providing bank application and commitment to the Bank of Indonesia or other parties. Also, assessing

the factors of earnings involves an assessment of return on equity (ROE), the achievement on return on assets (ROA), net interest margin (NIM), the bank efficiency level, diversification of revenue, the development of operating profit, implementation of accounting principles in recognising expenses, revenues and profit operating prospects. Assessing the liquidity factors involves an assessment of the potential maturity mismatch, the ratio of assets/liabilities of liquidity, loan to deposit ratio (LDR) condition, projection of cash flows, funding concentration, the adequacy of liquidity management and policy (liabilities and assets management/ALMA), stability of funding and access to funding sources. Assessing market risk sensitivity factors include an assessment of risk management market adequacy and the ability of the bank to provide cover for potential losses with capital as a result of fluctuations (adverse movement of exchange rates to interest rates).

Another of the Bank of Indonesia's regulation numbers, 13/1/PB1/2011, is about regulating Banks' health assessment system and is explained by Trading Economics (2013). According to them, the regulation number 13/1/PB1/2011 requires the weighting and re-grouping of dimensions or factors of evaluation despite no change in its relative coverage. Furthermore, they mention that the new PBI characteristics of assessment factors are only four: risk profile, good corporate governance, earning and capital (RGEC). In comparison to the former BI regulations there are relative new elements which are required to be assessed by banks with regards to the soundness of private banks through a risk based approach. According to Cetorelli (1999), assessing the profile of risk factors includes an assessment of the inherent risks and quality of managing risks in bank activities which are carried out on markets risks, credit risks, operational risks, liquidity risks, strategic risk, reputation risk, compliance risk and legal risks. However, according to Darini (2012), other elements of the GEC (good corporate governance, earnings and capital) share a lot in common with the old regulations. Also, by analysing the GCG factors, one can assess the bank management's implementation of good corporate governance principles. Furthermore, assessing the factors of earning involves an assessment of the bank's earnings sustainability, earnings performance and sources of earnings. Consequently, assessing the factors of capital includes an assessment of capital management and capital adequacy.

Darini (2012) made comparisons of the Banks' Health Assessment System under Regulation Number 13/1/PBI/2011 and Regulation Number 6/10/PBI/2004. The following Table (2) provides a summary that compares the new and the old regulations.

Table 2
Regulation Number 13/1/PBI/2011 and 6/10/PBI/2004 Comparisons

Components	Regulation Number 13/1/PB1/2011	Regulation Number 6/10/PB1/2004
Risk Profile	The assessment of risk profile includes market risk, credit risk, liquidity risk, operational risk, strategic risk, legal risk, reputational risk and compliance risk.	There are similarities between assessing credit risk on the risk profile of RGEC and asset quality of CAMELS' assessments.
	The parameters of liquidity do not involve a calculation of the LDR ratio (Loan to Deposit Ratio). However, the rest of the parameters are almost the same for both regulations.	The parameter of liquidity involves a calculation of LDR (Loan to Deposit Ratio).
	There are existing business and strategy policy parameters on the risk profile of each banks' market.	The focus of market risk is within the application of a system for managing market risk.
	If the ranking of a bank on a risk profile indicator gets worse, the bank will still not be predicted bankrupt if the parameters of risk management are healthy in terms of preventing or minimizing the risk of bankruptcy.	If the ranking of a bank on an indicator of liquidity, asset quality and market risk sensitivity is not good, then the bank can be predicted as heading towards bankruptcy.
Good Corporate Governance (GCG)	-Implementing good GCG is similar to CAMELS. -Risk profile contains the implementation of risk management. -Indicators of bank compliance contained in compliance risk factors in the risk profile.	-Indicators of GCG practices (board composition and structure, handling of conflict of interests, independency of board, ability to prevent or limit the quality decline of GCG, the effectiveness of performance of the committee function and transparency of education and customer information). -Applying systems for risk management. -Compliance of the bank (principles of KYC - Know Your Customer, net open position, maximum credit limit, compliance to commitments and other provisions).
Earnings	Performance of all components of profits (operating income, non-operating income, operating expenses, non-operating expenses and net income) in comparison with projections in the budget.	Not available.
Capital	Calculation of CAR with Basel II. Market risk, operational risk and credit risk are used for risk-weighted assets.	Calculation of CAR with Basel I. Only market risk and credit risk are used for risk-weighted assets.

Source: Darini (2012)

According to Trading Economics (2013), the reasons behind the change of regulation are due to the existing amendment to business complexity and risk profile, application of consolidated

supervision and a change in the approach of assessing bank conditions that has been internationally adopted as a way of influencing a banks approach to assessments. Furthermore, in terms of the factors of assessment, there are former regulations which have been classified in six factors known as CAMELS. However, the Bank of Indonesia (2013) mentions that there have not been any significant changes but only rating categories for classification that shows emphasis on some particular factors. Also, according to the bank, the current regulations characterize the factors of assessment into only four categories. These are risk profile, good corporate governance, earnings and capital. In comparison, he states that risk profile involves eight types of risks which are market risk, credit risk, operational risk, liquidity risk, strategic risk, risk of law, reputational risk and compliance risk. Moreover, the Bank of Indonesia (2013) highlights the fact that several indicators in the former CAMELS such as risk and remodelling profile factors have been included in the current regulations.

1.3.3 Basel Rules

Basel is a set of international banking regulations introduced by the Basel Committee on Bank Supervision. It sets out the minimum capital requirements for a financial institution in order to cover for the credit risk (Berger et al., 2004). Banks operating at the international level are required to maintain 8% of the capital based on the total weighed assets. The first accord of Basel was introduced in 1988 and concentrated mainly on curtailing the credit risk. It is formed of a group of ten countries aimed at managing the financial risk of financial institutions. The primary purpose of Basel in the context of Indonesian banks is based on enhancing customer satisfaction by willing their trust and loyalty and maintaining high levels of demand and supply in an honest and transparent manner. The basic function of Basel is based on disaggregating their exposures into broader categories that also reflects the debtor similarities. After a decade, it was proposed that the risk factors for every bank are different and thus it is important to manage and mitigate risks by introducing a credit risk plan for different banks in a well-planned manner (Cetorelli, 1999).

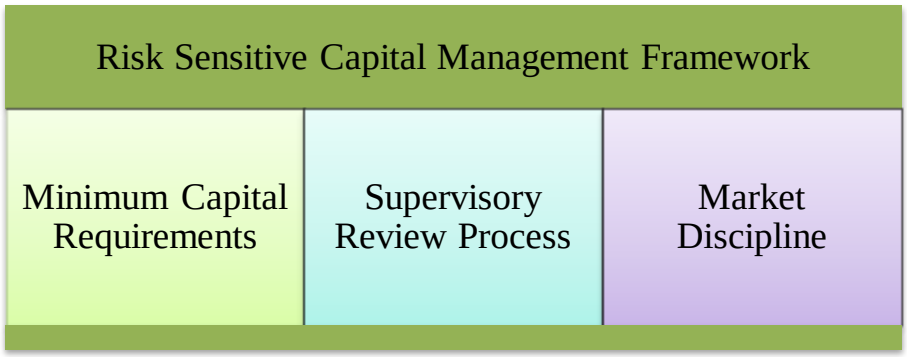
The growing diversity of the financial products and services led to the introduction of Basel 2 that is a comprehensive agreement of mitigating risks factors among financial institutions in a more systematic and professional manner. The major function of Basel 2 was based on adjusting capital requirements to credit risk and operational risk by changing the nature of the calculation of capital exposure to the risk of losses mainly arising from operational and

functional issues (Enoch et al., 2001). At the same time it was proposed that banks in Indonesia needed to maintain a fixed amount of capital that could cover their operational and functional risks in a significant manner. Basel III was introduced in late 2012 to set higher levels for capital requirement to ascertain the risk level. The Central Bank of Indonesia has implemented Basel III to further enhance the bank adequacy ratio to ascertain the risk level in order to strengthen the financial institutions (Bank Indonesia, 2013).

1.3.4 Basel II-III Utility

De Mello (2010) states that Basel II in Indonesia aims to facilitate risk sensitive capital management framework by managing minimum capital requirements, supervising the capital management process of banks and injecting discipline that is required to function in an appropriate and professional manner. Though the minimum capital requirement structure has been stated at 8%, this is not possible for every bank and thus there should be different banking requirements for different banks. On the other hand, Basel III has been proposed to enhance the regulatory framework set out by Basel II. It sets a higher level for capital requirements along with introducing liquidity framework. Under Basel III, the bank adequacy ratio has been divided into three risks levels, the low level with 8-9% of risk, the moderate level of 9-10% and the high level of 11-14%. These capital ratios help in ascertaining the overall risk and liquidity of banks and can be considered quite useful (Bank Indonesia, 2013).

Figure 4
Risk Sensitive Capital Management Framework



Source: *Implementation of Basel-2 in Indonesia*, Bank of Indonesia (2013)

1.4 Banking Industry

In the past few years, the banking industry in Indonesia has been alluring. Domestic as well as foreign commercial enterprises have 99 percent of Indonesian banks in their possession, thus creating a huge impact on its booming economy. 80 percent of the national assets are dependent on the bank assets which indicate that the Indonesian economy largely revolves around the existence of the banks. As per the new bank ownership rules set by the Central Bank of Indonesia in 2013, banks will be allowed to invest their capital in more than one business, which will again fuel the finance of the smaller banks and invite different business firms to merge (Nasution, 2003). In terms of profitability, Indonesia's banking sector is the most booming sector in Southeast Asia, possessing an unexplored market of about 60 million dollars inviting the investors in the near future. The banking industry is comprised of both commercial and Islamic banks and nearly about 120 commercial banks in Indonesia account for the 70% of the total credit in Indonesia highlighting the worth of the banking industry (Sastrosuwito, 2010).

The banking industry of Indonesia has helped a number of other industries to excel well in their respective business environment by offering capital and thus enhancing the economic prosperity within the country. Sastrosuwito (2010) stated that the banking industry of Indonesia is likely to witness mergers and acquisition as the ownership clause for local banks subjected at 40% and is likely to be amended and thus offering more opportunities and liberty to explore the financial opportunities. However, Craig et al. (2011) believed that this may not offer great value to the small and medium scale banks in the long run in terms of growth and development. Moreover, the majority of people in Indonesia do not have bank accounts which offer a number of opportunities to the banking institutions. This clearly shows that the banking industry of Indonesia is flourishing at a rapid pace with the end number of opportunities to become more profitable (Sastrosuwito, 2010).

1.4.1 Banking System

A Banking System is a system where different banks are meant to do financial transactions comprising of accepting money in the form of cash or cheque, provide different kinds of loans, transfer money, offer different investment plan and also to work under a particular

monetary policy (Sastrosuwito, 2010). The Central Bank of Indonesia carries out different functions like supervising the other banks and controlling the financial system of the country by implementing the monetary policy thus resulting in the economic growth of the country and the betterment of the financial infrastructure. The regional credit banks are excluded from the payment system and are allowed to deal with regional deposits and loans. The mode of payment of the commercial banks comprises of cash, funds transfer, cheque, direct debit and different types of payment cards. According to the Central Bank Act of 1999, the clearing system of Indonesia is done by the Central Bank (Sathye, 2003).

The Jakarta Electronic Clearing System is the largest clearing system in Indonesia. The RTGS (Real Time Gross Settlement) facility has been introduced by the Central Bank and this facility is available if the transaction amount exceeds 1 billion rupiah. A move has been taken by the Central Bank of Indonesia to control the risk factor and to boost the country's financial system that has been discussed in the Basel 2 section. Banks also offer loans and mortgages along with financing firms and enterprises through venture capital. Bank's customers come in the form of companies, individuals and state owned enterprises requiring capital to fund their needs. The banking system of Indonesia is quite robust in terms of capital inflow and has been affected mostly by the Asian and Global Financial Crisis when compared to European and US banks being severely affected by the Eurozone Crisis and the Subprime Crisis respectively. Even though European banks have been affected by several of the crises plummeting demands in the financial sector, the Indonesian banking industry has managed to stay promising and attracting.

1.4.2 Types of Banks

Apart from the Central Bank of Indonesia, the banking sector in Indonesia has two other types of banks: commercial and Islamic banks. The former has the main functions for banking in Indonesia, while the latter are smaller sized banks providing services which are limited and viewed as secondary banks (Sathye, 2003). Additionally, Sato (2005) mentions that there are five "forms" of banks which makes up the commercial banking sector which are categorized by ownership: regional development banks, state owned banks, private banks made up of private non foreign banks (non-Forex banks) and foreign exchange banks, joint banks and foreign banks. Also, Viverita (2011) states that more than sixty percent of the overall shares of the state owned banks are controlled by the Indonesian government. Furthermore, regional

governments also control regional development banks. According to Sathye (2003), originally private banks were completely controlled by local capital. Joint banks are held by foreign bank and domestic capital, while foreign banks are fully controlled by a foreign bank.

Consequently, Sato (2005) acknowledges there are 121 commercial banks out of which 4 are state-owned and 117 are private. State Owned Banks, Foreign Exchange Banks, Non-foreign Exchange Banks, Regional Banks, Joint Venture Banks and Foreign Banks have been categorized as commercial banks. There are 26 government regional banks, 86 private national banks, and 5 Islamic commercial banks in Indonesia. Bank Negara Indonesia, Bank Rakyat Indonesia and Bank Mandiri are state-owned banks. Bank ANZ Indonesia, Bank Hana, Bank Ganesha, Bank Metro Express and Bank Sinarmas all fall under Foreign Exchange Banks. Bank Andara, Bank Dipo International, Bank Harfa, Bank Artos Indonesia and Bank Mayora are some of the Non-foreign Banks. Bank Lampung, Bank Kalteng, Bank Bengkulu and Bank Sumut are some of the Regional Banks. Bank Commonwealth, Bank Agris, Bank DBS Indonesia and Bank UOB Indonesia belong to the Joint Venture Banks (Sharma, 2001).

Some of the Foreign Banks include The Royal Bank of Scotland, Bank of America, Bank of China, Standard Chartered Bank and a lot more. Apart from this, there is BPR (Bank Perkreditan Rakyat) or People Credit Bank meant for the rural people providing a limited service of loan and deposit only. These rural banks are extremely important in order to strengthen the root of the economy of the rural parts of Indonesia and a lot of stress is made on the enhancement of the role played by these banks by the Governor of the Indonesian Central Bank. There is no doubt that initiatives have been taken to strengthen the banking structure of rural, commercial and Islamic banks in Indonesia. Moreover, with various kinds of banks in Indonesia, customers have a number of opportunities and options to find their preferred type of bank that meets their banking needs. On the basis of the above discussion, it can be concluded that irrespective of the kinds of banks operating in Indonesia; the majority of them have been successful in creating long lasting value which helps in enhancing the global appeal of the Indonesian banking industry (Bank Indonesia, 2013).

1.4.3 Islamic Banks

According to Viverita (2011), for several years now there has been an evolvement of Islamic banking in Indonesia. He further mentions that the first Islamic commercial bank in the country was Bank Muamalat Indonesia (BMI) founded in 1991 (operations began in 1992). This bank is in coordination with Majelis Ulama Indonesia (MUI) which is a Muslim institution in Indonesia with Al-Tajdid and Fatwa. In a more recent survey, Viverita (2011) acknowledged that the financial structure and Islamic banking industry in Indonesia is presently made up of eleven Islamic commercial banks. Some conventional banks have now turned their business units into Sharia banking (Sastrosuwito, 2010).

The Islamic banking industry in Indonesia carries out their financial activities and funding through investment deposits and Wadiah demand deposits (Viverita, 2011); such funds are Islamic modes of financing which are invested in the business community (sales based financing and profit-loss sharing); the bank transaction profits are shared with funding partners (Sastrosuwito, 2010). However, in a more statistical analysis, Viverita (2011) mentions that there has been a progressive development in the industry by relying on the real sector performance. He states that the Islamic banking industry has gone through an impressive growth trend with total assets reaching Rp 145.5 trillion in 2012 (a five percent growth) in comparison with the end of 2010. Additionally, in 2011, the Bank of Indonesia (2012) announced that a growth of depositors' funds had reached Rp 101.8 trillion, which was a growth of about 25.3 percent in comparison to the previous year's results.

In regards to regulations, the Bank of Indonesia (2013) mentions that all Indonesian Islamic banks must adhere to an act by the Bank of Indonesia which regulates every financial transaction. Furthermore, a Fatwa was released by the council of Indonesian Sharia Scholars (MUI) for prohibiting interest in 2003. Also, according to the Bank of Indonesia (2008) there has been an approval of an Islamic Banking act No.21/2008 that provides a more legally solid background for Islamic bank's operations as a way of protecting capital investors and depositor's funds. Hence, as a result, there has been about 24 Islamic business units operating in the country under the principles of Sharia, and a total of eleven fully fledged Islamic banks.

However, with the introduction of Bank Act number 7 in 1992, the Islamic Banking came into existence working on the principles of Islam. The Dubai Islamic Bank was the first Islamic Bank which was established in the year 1975. Islamic Banking in Indonesia is another sector which is booming. Earlier the growth of these banks was restricted but after the assurance of

the Sharia Banking Law, there has been a remarkable change in its growth on the market. At present, 11 Islamic banks work independently and 24 Sharia business units work as Islamic banking sections of the commercial banks of Indonesia. There are 1223 branches of Islamic banks in Indonesia now. Some of the Islamic banks are Bank Syariah Mandiri, Bank Muamalat Indonesia, Bank Syariah Mega Indonesia, BRI Syariah, Bank BUKOPIN Syariah and Bank PANIN Syariah.

The Sharia banking system is gaining popularity due to less risks involved in it. Though it accounts for a minor amount of market share which is 4.23 percent only, but it is expected to rise to 30-40 % per year within the next 3-5 years. At present, Indonesia owns 11 Sharia banks, 24 Sharia units and 156 secondary banks based on Sharia. Indonesia's Sharia banking has recorded a huge amount of increase in their assets last year thus encouraging the government to motivate the banking system to invest more funds for the growth of all kinds of business firms. Qatari banks have a better chance than Malaysian banks which have shown interest in risky undertaking in Indonesia (Sastrosuwito, 2010). Despite the remarkable growth of the Islamic Banking industry, the factors responsible for its holding a smaller share of the total assets of the Indonesian Banking Industry have to be evaluated in order to maintain the rapid growth of the industry. This will help in enhancing the global appeal of Islamic banks in Indonesia along with creating more value out of the available options in a systematic manner. The next part of the discussion presents an overview of the commercial banks in Indonesia (Sato, 2005).

1.4.4 Commercial Banks

There are a number of commercial banks in Indonesia. Only a few (four) are owned by the state while the majority (117) are owned by private organisations. This states that the majority of commercial banks in Indonesia are managed privately. Commercial banks offer services like deposits and loans along with offering a wide array of investment opportunities to a number of customers. Under the Regulation 13 of the Bank of Indonesia, commercial banks are obliged to maintain and improve their credit rating by implementing risk measurement tools along with regular assessment of risks and other factors (Nasution, 2000). The importance of commercial banks is greatly recognised in the social and business environment of Indonesia as large numbers of business organisations are supported by the products and services of commercial banks. However, commercial banks are exposed to a number of risks

factors like default payments and frauds that can affect the overall operational framework of these banks. It is important to maintain a high level of risk bearing tools and measurements in order to safeguard the interest of banks and their customers in a well-planned manner (Sato, 2005).

Commercial banks are driven by the volatility of the market but in the last few years, a number of commercial banks in Indonesia have been successful in creating a mutual value making the banking industry one of the most highly profitable industries in the country. With an increase in the demand for financial products and services, a number of commercial banks are offering customised products and services to their customers. At the same time, there are a number of opportunities in terms of enhancing the appeal of banks by introducing new and innovative financial products and services (Cetorelli, 1999). Overall, it is believed that the commercial banks of Indonesia have been doing reasonably well in the last few years and with effective regulatory measures being placed and end number of opportunities the commercial banks may witness enormous growth and success in coming years.

1.4.5 Differences Between Islamic and Commercial Banks

Some of the major differences between the Islamic and commercial banks have been discussed in an illustrative manner highlighting the major differences in terms of operations, functions and acceptance (Cetorelli, 1999).

Table 3
Differences Between Islamic and Commercial Banks

Islamic Banks	Commercial Banks
Deposits are accepted through Musharaka and Mudaraba where the reward is not fixed and often variable.	Under commercial banks, rewards are fixed and often predetermined.
Risks and rewards are shared with the depositors.	Risks are borne by the banks and rewards belong to them after servicing the depositors at fixed rates.
Islamic banks do not charge interest for loans and do not offer interest for deposits.	Commercial banks charge interest for loans and offer interest for deposits.
Islamic banks are driven by Sharia Law where interest is prohibited.	Commercial banks are driven by banking regulations prescribed by the respective Central Bank.
Islamic banks cannot invest in government securities and bonds because of the interest factor.	Commercial banks can invest in government securities and bonds to facilitate the overall liquidity.
Islamic banks have to operate as per the Sharia Law that often limits the overall reach and product portfolio.	Commercial banks are operated as per the prescribed banking regulations that do not limit the banking product portfolio.

Source: Cetorelli (1999) and Hanif (2011)

1.4.6 Indonesian Banking Data

The top ten banks in Indonesia show a significant amount of assets on hold. At the same time, the market share being captured by these banks are also quite high reflecting a high customer base. It also shows that these banks offer a number of products and services and thereby attract large numbers of customers, and gain a high percentage of market shares. Moreover, there is not much data available on Islamic banking in Indonesia considering the fact that there are large numbers of commercial banks in Indonesia and since there is no Islamic bank whose stocks are publicly traded (Gamaginta and Rokhim, 2010). Some of the data concerning Indonesia's Banks have been presented in the following Table (4):

Table 4
Biggest Banks in Indonesia

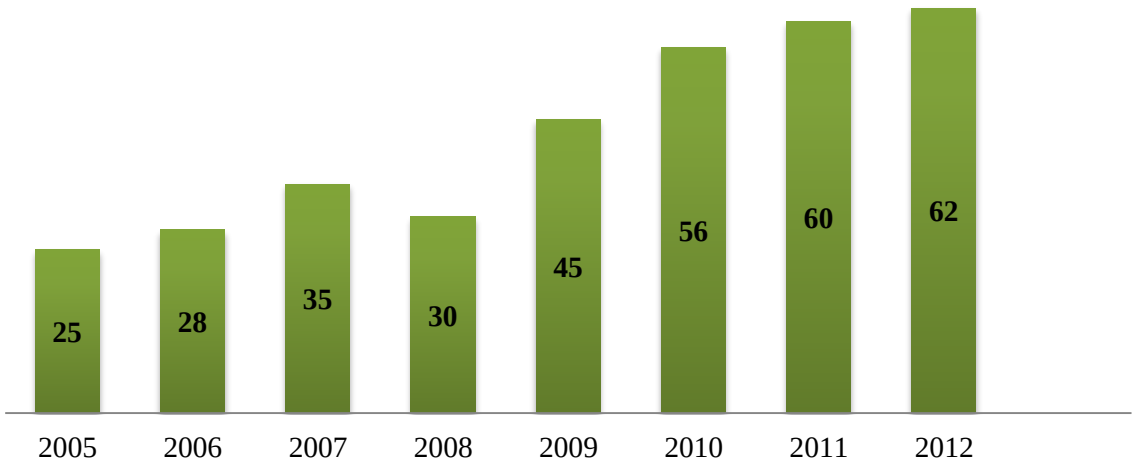
Banks in Indonesia	Assets (Rupiah, 000 bn)	Market Share (%)
Mandiri *	418.2	13.1
Rakyat Indonesia *	364.4	11.9
Central Asia **	329.5	10.7
Negara Indonesia *	233.5	7.6
CIMB Niaga ** / CIMB Islamic ***	146.1	4.8
Danamon Indonesia **	118.8	3.9
Pan Indonesia (PANIN) **	110.2	3.6
Permata *	82.0	2.7
Internasional Indonesia *	74.3	2.4
Tabungan Negara **	72.1	2.3
* *State Owned* ** *Private* *** *Islamic*		

Source: *Indonesian Financial Statistics*, Bank Indonesia (2013)

The net profits of commercial banks have increased every financial year. This means that the inflow of money has been quite impressive and facilitated the growth of commercial banks in Indonesia. There are a number of reasons behind the success of commercial banks in

Indonesia however the most impressive growth has been in the years 2009 and 2010 when the global economy was suffering under the financial crisis. This suggests that the commercial banks of Indonesia have been successful in being profitable even when the financial crisis was affecting the global growth of the banking industry mainly because of the liquidity factor. Thus, this enhances product portfolio compared to the Islamic banking industry being limited by the Sharia Law.

Figure 5
Commercial Banks Net Profit in Indonesia (Rp Trn)



Source: *Indonesian Financial Statistics*, Bank Indonesia (2013)

1.5 Financial Crisis

In the year 1998 the Indonesian economy witnessed a sharp decline in the economy as the national currency increased against the dollar and the price index also rose to new heights. As a result of the Asian Financial Crisis, prices of goods and services increased heavily and caused inefficiencies in the economy, as well as making life miserable for a number of people. This particular financial crisis was mainly because of the rise in the price index and a decline in the per capita income along with the rise in national currency. The Indonesian economy bounced back from the Asian Financial Crisis of the late 90s to restructure its businesses and industries in a well thought manner. A number of initiatives including credit control measures and debt structuring were introduced in the banking industry to make banks safer from potential risks and uncertainties (Berger et al., 2004).

Craig et al. (2011) suggested that the global financial crisis of the 2008-11 shook the major economies of the world. According to the authors, the crisis emerged largely from the mortgage market after a sharp increase in the mortgage foreclosures. This problem was in the form of a Subprime Crisis which led to a financial crisis by collapsing several financial institutions in the US and causing deep financial troubles to world economies. The impact of the financial crisis that was initiated in the US affected the Indonesian economy in a severe manner mainly because of the international operations and changes in the currency rates. According to Hall and Stone (2010), there is no doubt that Indonesia faced a severe financial crisis but was better prepared after experiencing the Asian Financial Crisis in 1998. Craig et al. (2011) further added that major effects were seen in the export sector (mainly oil and gas exports), along with severe crises in the manufacturing exports sector. It is often perceived that the effect of the global financial crisis was huge in the Indonesian economy. However, it still experienced only mild damages since the country posted positive growth numbers after the crisis, despite labelling the effects as quite large (Sato, 2005).

It was realised that the major impact of the global financial crisis was mostly experienced by commercial banks as lack of liquidity and absence of credit and risk measures affected the liquidity position. Furthermore, there were speculations regarding customers losing their interest and confidence in banks and thus creating a serious situation. However, the government of Indonesia got help from the International Monetary Fund to inject liquidity in the banking system (Sato, 2003). Not all banks were helped in terms of strengthening the liquidity position considering the fact that it would have put more pressure on the government to pay off the overall debt in a limited period of time. Sastrosuwito (2010) said that the impact of the financial crisis was much greater on the commercial banks compared to Islamic banks. This is because Islamic banks do not offer a wide array of products and services, and also do no charge interest which is against the law. However, even though the impact was considered huge on every bank, it was not a proper reflection of the situation as a whole.

Craig et al. (2011) noted that the major reason behind the suffering of commercial banks was based on the fact that customers lost their interest and confidence. Also, because of the high bank rush the majority of the banks faced a liquidity crisis where all the cash was quickly eroded and thus affected the national payment system. It can further be added that the impact of the financial crisis was severe on banking institutions as well as customers and the government. Banks were the main losers as they faced liquidity issues along with the task of

restoring their reputation and position in the market (CMEA, 2011). Darini (2012) also added that the impact of the financial crisis was more on the banking industry compared to any other industry as Indonesia does not rely much on the manufacturing industry. However, it was realised that the overall impact of the financial crisis was not huge enough to shake the Indonesian economy to the core. Despite its effects on the banking industry, due to regulatory measures, the overall impact was mitigated to an extent (Craig et al., 2011).

1.6 Gaps in the Literature

There is a lot number of research available on the global banking industry without much emphasis on the banking industry of Indonesia. Even though a number of research papers have been written on the growth and development of banks in Indonesia, not many address the reasons behind the growth and development. The Literature Review has underpinned reasons and factors responsible for this phenomenon in the banking industry of Indonesia, along with highlighting the current trends and development in the banking industry. The present research has not contributed much to the existing literature, but has presented a critical analysis by summing up the views and opinions of other academicians and researchers. This has assisted in forming a detailed analysis for the present and past literature in order to provide a background to the overall study.

1.7 Summary

This chapter has reviewed the banking industry in Indonesia by assessing its history and economy. It has also presented an insight into the banking regulations in Indonesia along with discussing the banking rules and regulations. The benefits of Basel as a financial standard have also been explained. The banking industry and systems have also been discussed in a critical manner. It was realised that the global financial crisis did not affect the Indonesian banking industry very much mainly due to the regulatory and financial measures, as well as the strong support from the export and service industry. Overall, it was concluded that the banking industry of Indonesia has been growing rapidly but faces challenges in the form of general banking strategies rather than specific strategies to support the function and dynamics of individual banks.

2. Empirical Studies Review

2.1 Introduction

The first part of this chapter has been prepared to understand and compare the performance of the Islamic and conventional banks in terms of efficiency, risk management and profitability. It will start with an insight into the growth of Islamic banks during the nineties, followed by a comparison between the two banks. It has been found that the Islamic banks are much more efficient than the conventional banks. Their profit and loss sharing concept and prohibition of interest transactions of the Islamic banks have facilitated the overall economy of the industry during the crisis period.

The most renowned approaches used to explain the banking function process, are the production and intermediation approaches. In the production approach, the banking activities associated with the production of services available to the borrowers and depositors are described. The intermediation approach on the other hand, harmonizes the production approach. It mainly views banks as intermediaries of various financial services and assumes them to collect funds and convert them into loans or other assets. Both conventional banks and Islamic banks act as intermediaries. The present financial crisis has shed uncertainties in the appropriate functioning of conventional banking and has increased the importance of Islamic banking (Noor and Ahmad, 2012).

The Islamic banking industry witnessed rapid growth and sustainable expansion during the nineties. There were two different approaches for expansion. Firstly, the Islamic financial institutions and banks were introduced in different countries involving various non-Muslim countries also. Presently, the number of such financial institutions and banks has increased to over one hundred. The second attempt was to convert the entire financial system in Muslim countries to adapt Islamic principles (Iqbal, 2001). The Muslim countries included, among others, Iran, Sudan and Pakistan. The performance of these banks have been assessed and evaluated during this period and findings reveal that they have performed fairly. The operating revenue had increased by 11.2 percent between 1990 and 1994. During the late nineties, the operating revenue increased by 3.7 percent (Iqbal, 2001). As a result, Islamic banks had a significant growth in terms of profitability during the nineties in all aspects.

2.2 Islamic Banking Vs Conventional Banking

2.2.1 Comparisons

Olson and Zoubi's studies related to conventional banking, state that the banks earn profits by buying transaction deposits from depositors at very low interest rates, then selling them at high interest rate to the borrowers on the basis of a competitive advantage related to information gathering and risk underwriting (Olson and Zoubi, 2008). The conventional bank earns profit from the difference between the interest rate charged to the borrowers and the rate given to the depositors. Islamic banking also performs the function of intermediary. The main difference in their functioning is that they generally do not receive any predetermined rate of interest from the borrowers and at the same time do not pay any predetermined rate of interest to the depositors (Olson and Zoubi, 2008). The profit is earned on the basis of profit sharing agreements made with the depositors and the borrowers. There is an allowance of fee based service in this type of banking service, which to some extent is similar to the conventional banks. The theories related to Islamic banking have been summarised well by Olson and Zoubi (2008). However the journal of Bader et al (2008) suggests that Islamic banking is considered as a distinct banking stream, which prohibits the interest transaction and replaces it with the profit sharing agreements (Bader et al., 2008). According to this study, the profit share is dependent on the risk participation of different parties.

Presently, there has been an increase of academic research into Islamic banking. This is mainly because of the fast growth in the Islamic banking industry. In the last three decades, these institutions have expanded their operations all over the world at a significant pace. According to Hassan (2003), there has been a significant increase in the number of Islamic banks from 75 banks in the year 1975 to more than 300 banks in the year 2005. Total asset value is increasing 15 percent every year, which is three times the growth rate of the conventional banks. However, the three topmost conventional banks had a very high asset value in the year 2005: Citi Group in the USA had an asset value of US $ 1484 billion; Mizuho Financial Group in Japan had an asset value of US $ 1296 billion and UBS in Switzerland had an asset value of US $ 1533 billion. Moreover, the bank of America which ranks tenth possesses an asset value of US $ 1110 billion. It is four times higher than the asset value of all the Islamic financial institutions.

If the banks perform their functions efficiently then it would lead to increased profitability, higher funds getting intermediated, high prices and quality services for the consumers. If some amount of 'efficiency saving' is utilized for improvement of the capital buffers, which absorb the risk, then it would increase the soundness and overall safety of the banks (Bader et al., 2008). The proficiency of the banks helps to improve the overall economy and has a positive impact on the society as well. This efficiency is influenced by a number of factors existing in the environment such as size, quality of input, output, age, characteristics, management characteristics and changes in the rules and regulations (Berger, 2009). Conversely, inefficiency in the financial intermediaries might lead to additional danger in the tax payer financed industry resulting in substantial losses. The liberalization in financial markets globally has increased the utilization of advanced technology in the banking industry. This has made competitive pressure on the banking firms in the domestic as well as the international markets all over the world. This pressure is important for the banks originating in emerging markets because they comprise of the main financial intermediaries for channelizing the investments and savings (Berger, 2009). If the banks perform their function efficiently, then the competitive advantage is enhanced.

Thus the journal provided by Bader et al (2008) assisted in summarising the increase in the demand of Islamic banking over conventional banking. However, in this context, Bader et al (2008) have stated that the conventional banks have a number of advantages over the Islamic banks. These banks have operated for a long period of time and have vast experience in this field; they allow interest transactions, which act as the strongest source of revenue and do not prefer sharing losses with the clients and demands for guaranteed collaterals in maximum transactions. This facilitates them to enjoy high capital spread widely with more advanced technologies. Additionally, they can easily enter the Islamic banking market. There has been a great deal of research related to the efficiency of the conventional and Islamic banking streams. In last few years, there have been a number of changes in the functioning of both the banking streams. The present scenario reflects that a large number of big international conventional banks are offering Islamic banking services to their customers in order to compete with the Islamic banks. The Islamic banks have increased in number and they are also competing among themselves to achieve success in the industry. The practice of Islamic banking is spreading rapidly and because of the establishment of a large number of Islamic banking entities, new rules, regulations, accounting standards and policies are being designed in order to accommodate the changes.

According to Beck, Demirgüç-Kunt and Merrouche (2010), it has been found that Islamic banks are much more efficient compared to the conventional banks. However, this issue is highly controversial and requires investigation into the differences between the ways they function. One of the most unique features of the Islamic banking approach is its characteristics related to the profit and loss sharing paradigm. In practice, the functioning of Islamic banking is not far different from conventional banking except from its profit and loss sharing concept. Chong and Liu (2009) mention in their journal that the rapid growth of the Islamic banking industry is highly driven by the Islamic renaissance because of the advantages received from the profit and loss sharing model. It has been suggested that the Islamic banks must be subjected to strict rules and regulations like their western counterparts. Thus Chong and Liu have helped in focussing on another important aspect of Islamic banking in terms of the growth within the industry. There has been a significant increase in the literature on Islamic banking revealing their role in Islamic finance. Most of the literature contains comparisons between the functioning of Islamic banks and commercial banks. Islamic banking, sometimes referred to as "Sharia-compliant banking" deals with the use of those financial products and services, which belong to the laws and religious practices of Islam (Bassens, Derudder and Witlox, 2011).

As previously mentioned, the Islamic financial services prohibit the receipt and payment of interest at a predetermined rate. The profit and loss sharing arrangement, buying and reselling of the products and services and providing services for fees are the basis of contracts in Islamic banking. Čihák and Hesse (2008) have clearly mentioned in their study that while considering the profit and loss sharing contract in Islamic banking, the actual rate of return on financial assets remains unknown before undertaking such transactions. In the case of buying and reselling transactions, one mark-up is always decided based on the benchmark rate of return. Islamic finance has become one of the most rapid growing segments in the international financial industry, where its operation has become so important that it cannot be ignored. There are various factors responsible for this rapid growth of Islamic banking industry. They are: a) A high demand for the Sharia-compliant products in most of the Islamic countries; b) The advancement in the regulatory and legal frameworks for Islamic finance; c) Increasing demand from the conventional investors in the market; d) The ability of the Islamic banking industry to produce a large number of financial instruments, which would meet the needs and demands of corporate and individual investors (Pallec, 2012). In comparison to this, there have been many arguments which claim that the loss, which the conventional banks

suffer during the crisis period, is because of the lack of exposure in the assets. It is the risk sharing and asset based nature of the Islamic finance which has shielded this banking industry from the effect of a crisis period (Hasan and Dridi, 2010).

Shafique, Hussain and Hassan's 2012 study states that the comparison between the performance of Islamic banks and conventional banks indicates a better performance from the Islamic banks. Whereas the conventional banks have incurred huge losses in countries such as the United States and Europe due to a global crisis (Shafique, Hussain and Hassan, 2012). In order to assess the effect of a global crisis on both the sectors, it is important to assess the performance of both the banking industries in various aspects during the crisis period. Hasan and Dridi (2010) have helped in assessing the profitability of both the banks between the dates 2008 to 2009. In respect of profitability, Islamic banks have performed better than conventional banks in the year 2008. In 2009, the growth of Islamic banks in assets and credit started becoming higher than the conventional banks in almost all countries except the United Arab Emirates (Hasan and Dridi, 2010). According to the rating of financial institutions by the rating agencies, the change in the risk assessment of Islamic banking has been much better as compared to the conventional banking (Hasan and Dridi, 2010). The business model of Islamic banking helped in shielding the adverse effect of the crises period on the industry.

Mostly, Islamic banks play very similar roles to the conventional banks. They help in addressing to the asymmetric information problem (Asutay, 2012). The banking model reduces the overall transaction cost and facilitates in the diversification process for small investors and savers. While carrying on their business, the Islamic banks manage and reduce the risk associated with asymmetric information problems. However, the main difference in the operation of Islamic banks and conventional banks is that the Islamic banks perform their operations in compliance with the rules and regulations of Sharia (which is the legal code in Islam). The concept of Islamic banking is justice by means of its risk sharing method. The Islamic banking and finance (IBF) includes high moral and ethical values (Asutay, 2012). Khan (2010) has argued that the Islamic banking is much more economically efficient compared to conventional banks. The Islamic banks promote higher justice and economic equity in comparison to conventional banking. The 'interest-free banking' concept that Islamic banking uses has driven the industry during the financial crisis period.

Research has also been done on the reason behind the conventional investors getting attracted to the Islamic financial instruments. A comparison between Malaysian Islamic and conventional security prices and their responses to the macro economical factors suggest that the Islamic bond and conventional bond as well as their equity prices are driven by some common factors. However, results reveal that in the past few years the Islamic banks have also started responding to the financial and economic shocks, similar to the conventional banks (Krasicka and Nowak, 2012). This suggests that the gap between the conventional and Islamic financial and banking practices is shrinking. Shamsher, Hassan and Bader (2009) have suggested in their journal that there is no significant difference in the overall efficiency results of the Islamic and conventional banks. It suggests that there remains scope for the banking system to improve in respect of profit maximization and cost minimization. However, most of the results are in favour of the Islamic banking system because they possess high capital and a good liquidity position (Jaffar and Manarvi, 2011; Said, 2012).

2.3 Determinants of Banks' Profitability

The second part of this chapter elaborates on the determinants of Islamic banks and conventional banks which affects their overall profitability. For conventional banks, the main factors that affected the profitability are both internal and external factors. Whereas for Islamic banks the main factors that affected their profitability are the ratios which showed both positive and negative relation to profitability.

2.3.1 Determinants of the Conventional Banks

Scott and Arias (2011) have identified that the banking industry plays a crucial role in the economic development of the country. It has made itself strong enough over decades to generate profit and contribute to the betterment of the mass. Research carried out by Berger and Deyoung (2006 cited in Scott and Arias, 2011) have highlighted that bank in the United States have rapidly extended their branches nationally and also internationally in recent years. The American banking system has experienced potential diseconomies over that period due to a variety of factors. The main reason being the agency cost which is associated with the monitoring of junior managers in the geographical expansions. Innovations in telecommunication and information processing will lessen the agency costs by progressing on

the ability of the senior managers who are located at the organizational headquarters. They have a primary duty of monitoring and communicating with the distant staff and the subsidiaries (Scott and Arias, 2011).

As identified by Kosmidou et al (2006), the main reason for the inefficiency of the Ukrainian banking sector roots from the Soviet banking system. There has been a rapid increase in the number of banks in Ukraine from 1991 since the government created no barrier for the entry of the new banks. However, the condition of the banks was poor due to the Soviet banking system that they followed. During the end of 2009, 179 banks were licensed, but the expansion thereafter was not so significant. The condition became better when the three banks were nationalized. Thus, the typical Soviet banking system affected the profitability of the banks (Kosmidou et al., 2006).

According to Gart and Pierce (1998) the banking sector is an important source of financing for most businesses. Good financial performance inevitably leads to benefit the organizations. There are various external and internal banking characteristics which draw the difference between the determinants of profitability in both, Islamic and commercial, banks. As identified by Gart and Pierce, the determinants of profitability of the banking system can be explained through external and the internal variables. The internal factors are under control of the bank management and the external factors are the macro-economic environment that affects the performance of the bank. Short and Bourke have studied bank profitability (Gart and Pierce, 1998), the results showed the following internal and external factors that affect the profitability of the banks (Kosmidou et al., 2006):

2.3.1.1 Internal factors

Size of the Bank

Liu and Wilson (2010) identified that the size of the firm has an indifferent impact on the profitability of the banks. In a study of European banks between the dates 1992-1998, Goddard (2000 cited in Liu and Wilson, 2010) found that there lies a relationship between the size of the bank and its profitability. Smirlock (2001 cited in Liu and Wilson, 2010) proved that there is a significant positive impact between the size of the bank and the profitability of the bank. He also noted that the positive influence was due to the lowering of the capital cost for the big banks. Despite the positive responses obtained by the above research, Liu and

Wilson (2010) have identified that there is no evidence to suggest that increasing the size of the bank benefits the bank by economies of scale to banks (Liu and Wilson, 2010).

Cost

Liu and Wilson (2010) have showed out that the operating cost of the bank has a negative correlation with the profitability of the bank. The level of operating expenses is observed to be the key indicator efficiency of the management of the bank efficiency. After extensive research, that included several European countries, Liu and Wilson concluded that the operating costs do have a negative impact on the profit despite the positive effect on the net interest margins. The addition of the expenses of the bank in the profitability is supported by many researchers who find a link between the profitability of the bank and their expense management (Liu and Wilson, 2010).

Liquidity

Kosmidou et al (2003) have identified that liquidity insufficiency is the most important factor that leads to the failure of banks. The liquid assets have opportunity costs, which gives a higher return when it is kept in hold. He has also found a major positive relation between the liquidity of the bank and the profitability. In a phase of instability, the banks may prefer to increase the cash holdings for mitigating the risk (Kosmidou et al., 2003).

Capital

According to Kosmidou et al. (2003), the banks with significant higher levels of fund have performed better than the banks with low capital. He has made a claim that there is a positive relation between higher capital and profitability among European Union banks. His study has also traced out the positive impact of the level of equity on profitability. Thus he has supported the finding of the positive relationship between the bank's earning and the capital/asset ratio (Kosmidou et al., 2003).

Asset Quality

According to Ponce (2012), there is a direct relationship between the profitability of the Spanish banks and their asset in the balance sheet. Poor credit quality creates a negative impact on the profitability of the bank. He identified that the relationship is because of an increase in the doubtful assets that does not accumulate to increase the income. There is a

requirement for the bank for allocating the gross profit margin, which covers the expected credit loss, thus it will lower the profitability (Ponce, 2012).

2.3.1.2 External factors

The external factors, like the macro-economic factors also affect the profitability of the banks. These factors are as follows:

Inflation

Ponce (2012) has regarded these as the most important determinant for the profitability of the bank. He has identified the fact that the profitability of the Spanish banks will only get affected by the inflation if the inflation rate moves faster than the operating expense. Thus, he said that the effect of inflation is dependent on the macroeconomic stability. His studies have proved that the relation between the performance of the bank and inflation rate is dependent on the ability of the management for predicting inflation. The correct prediction of inflation and interest rates by the mangers will help the management to collect good amount of revenue which is higher than the cost (Ponce, 2012).

Exchange Rate

Kosmidou (2008) has stated that there is no effect on the exchange rates on the profitability of the banks in the European Nations. This is not the same for banks in Ukraine. The Ukrainian banks are operating in such an environment where the income can be extracted from the foreign exchange transactions due to the lack of transparency in the pricing of financial products (Kosmidou, 2008).

Industry Characteristics

Davydenko (2010) have concentrated on the monopolistic nature of the banks in earning profit. The studies suggest that the increase in the market lead to the monopolistic profits. The banks which are in highly concentrated markets tend to earn profit by monopoly power. Davydenko has also pointed out the fact that concentration tends to reduce the profits of the foreign competitors by restricting their entry (Davydenko, 2010).

Domestic Vs Foreign Ownership

Kosmidou (2008) has pointed out the fact that foreign banks are less cost efficient. The domestic banks make more profit than the foreign banks. Bonin, Hasan and Wachtel (2007 cited in Kosmidou, 2008) have concluded that foreign owned banks are more cost efficient than the domestic banks. They have identified the need of foreign ownership for the development of the local banks. The foreign ownership of the local banks will lead to disciplining the work environment of the bank and boosting the efficiency of the employees in the banks. The overall efficiency of the domestic banks can be increased by the foreign ownership of the bank. The foreign banks acquired the local agents for maximizing their profit and provided better overall control (Kosmidou, 2008).

Market Share

According to Halkos and Salamouris (2004), the banks which have larger market shares are more profitable than the smaller counterparts. The banks with well differentiated products and larger market share exercises market power and they also earn higher profits (Halkos and Salamouris, 2004).

Stock Market

The stock market finance also affects the profitability of the bank. Halkos and Salamouris (2004) have argued that the development of the stock market level will increase the profitability of the bank. The reason behind the increase is that the development of stock market permits the firms to be more capitalized therefore there is a remarkable reduction in the risk of loan default. The higher the level of development of the stock market, the more information about publicly traded firms is available, which in turn helps the banks to evaluate the firm for the credit risks. Additionally, the more the development of the stock market, the better the availability of the information and thus there could be a pool of potential borrowers who are interested in investing the firm. These help the banks to identify the firm better and monitor the loans that are taken by them. Thus there is also an increase in the volume of business for the banks which leads to profitability (Halkos and Salamouris, 2004).

2.3.2 Determinants of the Islamic Banks

Ali et al. (2012) has identified that there was a steady expansion of Islamic banks during the period of 1980s and 1990s in the Middle East. With its networks across 60 countries and with

revenue of $200 billion, the Islamic banks have been playing an important role in the development of the banking sector globally. There are seven characteristics of the bank that are used as the internal determinants of the bank's performance. These are the measures that are mostly used for understanding the factors that underline the return on assets and net margin. "They include fund source management (CSTFTA), funds use management (OVRHEAD and NIEATA), capital and liquidity ratios (EQTA and LOANTA), risk (LATA) and a fake variable for ownership (FRGN)" (Ali et al., 2012).

All the determinants except the risk variable are interacted with the GDP for capturing the impact of GDP on bank's performance. The earlier studies conducted by Ali et al. (2012) regarding the determinants of profitability of the banks have found a strong relationship between the profitability and EQTA. These identify the fact that profitable banks are well capitalized and enjoy cheap access to source of funds which increases the profitability of the bank. The researchers have also found a positive relationship between the ratio of bank loan to total asset (LOANTA) and the profitability. The bank loans are the main resource of revenue and it affects the profit positively.

Hassan (2003) has pointed out that the loans of the Islamic banks are in the form of the profit and losses and as a result it may get affected during the time of financial crisis. The Islamic banks earnings come from the non-interest activities. Thus, the ratio of non-interest assets to total assets (NIEATA) is predicted to affect profitability of the bank positively. The ratio of the consumer and short-term funding to total assets (CSTFTA) is liquidity ratio obtained from the liability side of the balance sheet. It consists of the current deposits, investment deposits and saving deposits. The liquidity holdings tend to present itself as the expense to the bank thus the coefficient of the variable is predicted to be negative (Hassan, 2003).

Ika and Abdullah (2011) have stated that the operation in the Islamic banks is identified by the high scale of financial risks. The Islamic banks undertake risky operations for generating comparable returns for their customers when there is an absence of guaranteed returns on the deposits. The ratio of total liabilities to the total assets (LATA) is taken as the alternate option for risk calculation. The ratio indicates greater leverage or lower capital. With the help of LATA, there is greater understanding of risk that the bank takes when they are opting for higher returns. When the bank decides to take capital risk, the return equity as well as the leverage multipliers is higher (Ika and Abdullah, 2011).

During the study of Ika and Abdullah (2011), LATA is taken to be positively linked with the bank's performance (Bashir, 2003). The absence of insurance deposit leads to higher risk taking, which exposes the bank to insolvency (Ika and Abdullah, 2011). Thus, the LATA coefficient can be negative. The ratio of the overhead to total assets (OVRHD) helps in providing information on the variations in the bank cost in assistance with the banking system. It indicates the total amount of salaries and wages. According to the study of Almarazi (2012) overheads are predicted to have a negative effect on the performance because the proficient banks are expected for operating at a much lower cost. The determinant of foreign ownership (FRGN) is predicted to impact profitability positively as it indicates the benefits of the foreign banks from the tax breaks (Almarazi, 2012).

2.4 Conclusion

Both Islamic banking and conventional banking performs the function of intermediaries. The Islamic banking industry has seen significant growth during the nineties. These banks have gained huge importance during the period of global crisis. Although, the conventional banks have several advantages over Islamic banks, they have been in operation for a long period of time and possess solid experience in this particular field, but most of the research supports that the Islamic banks are much more efficient than the conventional banks. Their profit and loss sharing concept as well as prohibition of interest transactions have facilitated the overall economy of the industry during the crisis period. However, the gap between both the banking industries is shrinking gradually as the Islamic banks have also started responding to the global financial crisis. Both banking systems have scope for improvement in operational activities associated with cost minimization and profit maximization.

The determinants affecting conventional banks tend to find a positive relationship for the profitability of the banks. The studies have also noted the positive impact of the level of equity and the stock market movements to have a positive effect on the profitability. The determinants of the Islamic banks which are identified by the different ratios tend to find a negative correlation with profitability. For example, the LATA coefficient is becoming negatively related with profitability. Thus it can be said that the conventional banks performed well in comparison to the Islamic banks.

3. Data and Methodology

This research focuses on finding the contributing factors to banks' profitability in Indonesia. We have chosen Indonesia because it has a very diverse and developed banking industry, as depicted previously in the Literature Review. What is also very characteristic for the banking industry in Indonesia is the presence of Islamic banks. Islamic banks are governed by different rules known as the Sharia Law compared to a more conventional banking institute such as a commercial bank. Following Sharia Law, bank managers have to refrain from taking interests and exposing the banks to substantial risks. Although the latter must also be followed by the conventional banks managers, it is more present in terms of Islamic banks. This rule might have prevented Islamic banks from declaring bankruptcy in the recent financial crisis, and it may also make Islamic banks more profitable than their conventional counterparts. Therefore, this study tries to verify this hypothesis.

For the purpose of our research, fifty-four Indonesian banks of which four are Islamic have been selected. We follow the banks over the period of several years which provides us a panel data set to work with. The panel data set allows us to analyse the dynamic changes that determines profitability, hence creating challenges in terms of the estimation techniques. We rely on the well-established general method of moments to address those challenges. Following on, our sample and techniques are explained in more detail.

3.1 Sample

We have derived the data from the *bankscope* data provider. From the 238 banks registered within the Indonesian banking authority, the *bankscope* provides data on 147 banks. Out of this subsample only 91 delivers data on regular basis. The banks that have been selected are among the banks that had the data for the year(s) before and after the recent global financial crisis which gives us a total number of 54 banks. Table 5 shows the name of the banks and their characteristics (2006), particularly their total assets and profitability measured via the return on assets ratio.

Table 5
Selected Indonesian Banks

Number	Bank Name	Total Assets	ROA
1	Bank Mandiri (Persero) Tbk	319085600.00	1.48
2	Bank Rakyat Indonesia (Persero) Tbk	203734900.00	2.70
3	Bank Central Asia	218005000.00	2.27
4	Bank Negara Indonesia (Persero) - Bank BNI	183341600.00	0.51
5	PT Bank CIMB Niaga Tbk	93797200.00	2.22
6	Astra International TBK PT	63519600.00	13.13
7	Bank Danamon Indonesia Tbk	89409800.00	2.65
8	Bank Pan Indonesia Tbk PT-Panin Bank	53470600.00	2.03
9	Bank Permata Tbk	39303700.00	1.32
10	Bank Internasional Indonesia Tbk	55015700.00	0.39
11	Bank Tabungan Negara (Persero)	36693200.00	1.16
12	PT Bank Bukopin	34446200.00	1.14
13	Bank Mega TBK	34907500.00	1.58
14	PT Bank UOB Indonesia	18260100.00	2.39
15	Bank Tabungan Pensiunan Nasional PT	10580048.00	4.10
16	Bank Syariah Mandiri †	12885391.00	1.03
17	Bank DBS Indonesia	20845500.00	1.13
18	PT Bank Muamalat Indonesia Tbk †	12610800.00*	1.61*
19	Indonesia Eximbank	10292000.00	2.92
20	Bank Sumitomo Mitsui Indonesia	7674500.00	2.43
21	PT Bank ANZ Indonesia	6297600.00	3.09
22	Bhakti Investama Tbk (PT)	19741809.00	9.87
23	PT Bank Mizuho Indonesia	12462400.00	2.05
24	PT Bank DKI	11838239.00	0.63
25	Bank Ekonomi Rahardja	15641800.00	1.29
26	PT Astra Sedaya Finance	7444100.00	3.83
27	Bank BPD Jateng-Bank Pembangunan Daerah Jawa Tengah	12211100.00	2.93
28	PT Bank ICBC Indonesia	640700.00	0.04
29	PT Bank Pembangunan Daerah Riau	11882600.00	1.57
30	PT Bank Mayapada Internasional TBK	4474700.00	1.00
31	Bank Commonwealth	6354600.00	0.55
32	Bank Sinarmas	5468400.00	0.15
33	Bank Victoria International TBK (PT)	5268995.00	1.21
34	Bank Rabobank International Indonesia	9657150.00	1.06
35	Bank Mutiara Tbk	14509600.00	-1.33
36	PT Bank Resona Perdania	5083940.00	2.53
37	PT Bank Pundi Indonesia	1349719.50	0.05
38	PT Bank Himpunan Saudara 1906	1463046.00	2.52
39	Bank ICB Bumiputera	6346400.00	0.35
40	PT Bank BRI Syariah †	3178400.00**	0.51**
41	Bank Nusantara Parahyangan	3772800.00	0.90
42	BFI Finance Indonesia Tbk (PT)	2524000.00	10.14
43	PT Sarana Multigriya Finansial (Persero)	1188100.00	5.63
44	PT Bank Capital Indonesia	1203400.00	1.51
45	PT Bank Woori Indonesia	3067900.00	3.66
46	PT Bank Hana	300521.00	1.13
47	Bank KEB Indonesia PT	2559500.00	4.95
48	PT Bank Rakyat Indonesia Agroniaga Tbk	2983769.00	0.15
49	Bank BNP Paribas Indonesia PT	2154700.00	3.55
50	Buana Finance Tbk PT	1418600.00	5.97
51	Bank Bumi Arta	1950300.00	1.13
52	PT Bank Of India Indonesia Tbk	1167700.00	0.79
53	Danareksa (Persero)	3300600.00	2.06
54	PT Bank Maybank Syariah Indonesia †	1155949.00	8.93

* data from 2008
** data from 2009
† Islamic bank

Source: *Bankscope* (2013)

As a result, we analyse 54 banks from 2006 to 2012 with some gaps for some of the banks (noticeable in the Excel sheets number 7 attached on the CD-ROM), which provides 245 observations. The fact that some figures are missing means that our data set has the form of an unbalanced panel.

3.2 Definitions of Variables

In our study, we have focused on determinants of profitability that are most commonly analysed in previous literature. Ponce (2012) uses a selection of variables that describe the asset structure and quality, the capitalisation, the financial structure, the efficiency, the industry concentration and the size of the banks, as well as a set of macroeconomic variables regarding the Spanish banks. His approach is followed and applied to the Indonesian banks. The list of the selected determinants with their short descriptions and expected signs is shown in Table 6.

Table 6
Dependent and Independent Variables

Notation	Description	Expected signs
	Dependent variable	
ROA	Return on Assets (%)	
	Explanatory variables	
Loan/TA	Loans to Total Assets Ratio (%)	(+)
NPL/GL	Non-performing Loans to Gross Loans Ratio (%)	(–)
LLP/NL	Loan Loss Provisions to Net Loans Ratio (%)	(–)
Eq/TA	Equity to Total Assets Ratio (%)	(+)
Dep/TL	Customer Deposits to Total Liabilities Ratio (%)	(+)
DepGR	Annual Customer Deposits, growth rate (%)	(+)
CIR	Cost-to-income Ratio (%)	(–)
Size	Total Assets, logarithm	(+)
IC	Industry Concentration	(+)
GDP	Annual real Gross Domestic Product, growth rate (%)	(+)
Inflation	Consumer Price Index annual inflation rate (%)	(+)
Interest	Main interest rate (%)	(–)
Islamic	Dummy variable for Islamic bank (1 if Islamic, 0 if non-Islamic)	(+)

3.2.1 Dependent Variable

Regarding the dependent variable, we use one measure of profitability widely used in banking literature which is the return on assets (ROA). “It is perhaps the single most important ratio for comparing the efficiency and operational performance of banks” (Ponce, 2012). The return on assets is a financial ratio that shows the percentage of profit that a company earns in relation to its overall resources and it is commonly defined as the net income (or pre-tax profit) to total assets. ROA is also known as a profitability or productivity ratio because it provides information about management's performance when using the assets to generate income, hence providing an indicator of management efficiency.

3.2.2 Independent Variables

The aim of this study is to analyse the determining factors of bank profitability in Indonesia during the period 2006-2012. In order to do so, we use some bank-specific factors which are asset structure, asset quality, bank capitalization, financial structure, efficiency and size as well as external (industry and macroeconomic) factors. Thus, we consider that the following independent variables should influence the bank's profitability measure (ROA) and have the following meaning and expected effects:

Loans/total assets – the ratio of loans to total assets. It is expected that an increase in the loans to total assets ratio should lead to a higher rate of ROA;
Non-performing loans/gross loans – the rate of share of non-performing loans in the amount of gross loans. It is expected that an increase in the share rate of non-performing loans in gross loans amount will lead to a decrease of ROA;
Loan loss provisions/net loans – the rate of share of loan loss provisions in the amount of net loans. It is expected that an increase in the share rate of loan loss provisions in net loans amount will lead to a decrease of ROA;
Equity/total assets – the ratio of equity to total assets. It is expected that an increase in the ratio of capital and reserves to total assets should lead to a higher rate of ROA;
Customer deposits/total liabilities – the rate of share of customer deposits in the amount of total liabilities. It is expected that an increase in the share rate of customer deposits in total liabilities amount should lead to a higher rate of ROA since deposits constitute a cheap and stable financial resource compared with other financing alternatives;

Annual customer deposits growth rate – the annual growth rate of customer deposits. It is expected that an increase of this variable should lead to an increase of ROA;
Cost/income – the ratio between operating expenses and operating income. It is a measure of how costs are changing compared to income. The lower the ratio the more efficient the bank is, hence an increase of this ratio should lead to a decrease of ROA;
Size – the logarithm of total assets. It is expected that there is a positive relationship between bank size and bank profitability. Therefore, an increase of bank total assets should lead to a higher rate of ROA;
Industry concentration index – the ratio of total assets to the sum of all Indonesian banks' (except the central bank) market shares in terms of total assets. It is expected that there is a positive relationship between the concentration of the banking sector and the bank's profitability. Thus, an increase of bank industry concentration will lead to a higher ROA;
GDP growth rate – the real growth rate of Indonesian gross domestic product. It is expected that an increase of this variable should lead to an increase in the bank profitability i.e. ROA;
Inflation – the annual consumer price index inflation rate. Recent studies (Alexiou and Sofoklis, 2009) confirm a positive relationship between inflation and profitability. Therefore, it is expected that an increase of inflation will lead to a higher ROA;
Interest – the interest rates. There is an inverse relationship between interest rates and profitability. It is expected that an increase of interest rates should lead to a decrease of ROA;
Finally, we include a dummy variable to control for bank type (Islamic or commercial banks).

The expectations of the individual impact on the identified independent variables on the return on assets of the Indonesian banking sector would be confirmed through the application of the regression analysis.

3.3 Descriptive Statistics

The descriptive statistic describes the main features of our data. Table 7 provides an initial outline of the Indonesian banking situation over the last six years (2006-2012). The cross-sectional averages of the variables for all the years as well as the standard deviations are presented in the following Table (7):

Table 7
Summary Statistic for Indonesian Banks

Year	Variable												
	ROA	Loan/TA	NPL/GL	LLP/NL	Eq/TA	Dep/TL	DepGR	CIR	Size	IC	GDP	Inflation	Interest
Column No.	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
2007	1.841	53.8438	2.67294	0.86169	14.5322	82.0701	37.3402	53.4288	16.2022	2.15	6.3	5.775	8.59
	(0.265)	(2.292)	(0.29)	(0.382)	(1.757)	(2.669)	(14.317)	(2.669)	(0.243)	(0.631)	-	-	-
2008	1.493	59.6173	2.59424	1.08948	14.6766	83.6984	12.7921	57.9924	16.0792	2.17073	6	11.284	8.65
	(0.23)	(2.125)	(0.253)	(0.181)	(1.768)	(2.642)	(7.664)	(3.568)	(0.249)	(0.615)	-	-	-
2009	1.652	57.4828	3.42714	0.40513	13.9685	86.4468	11.6772	60.3872	16.2312	2.11628	4.6	3.652	7.11
	(0.452)	(2.305)	(0.688)	(1.383)	(1.836)	(2.205)	(4.833)	(4.061)	(0.234)	(0.596)	-	-	-
2010	1.863	58.0341	3.9989	1.28708	13.9801	84.7583	15.3773	59.9948	16.3458	2.02273	6.2	5.048	6.5
	(0.412)	(2.245)	(1.135)	(0.414)	(1.364)	(2.546)	(5.063)	(4.086)	(0.229)	(0.557)	-	-	-
2011	1.561	61.52	2.1906	0.55337	12.3268	86.145	21.1461	61.3259	16.5315	2.12195	6.5	5.54	6.58
	(0.204)	(1.434)	(0.231)	(0.183)	(0.932)	(1.664)	(8.077)	(3.917)	(0.231)	(0.578)	-	-	-
2012	1.842	64.8392	1.81906	0.58526	12.4883	83.3932	10.8641	53.4564	16.7096	2.47222	6.2	4.53	5.77
	(0.141)	(1.435)	(0.222)	(0.131)	(0.842)	(2.249)	(2.736)	(2.481)	(0.255)	(0.656)	-	-	-

This table reports the means and standard deviations (in parentheses) for the entire sample by year. The sample comprises 54 banks (245 observations). ROA is the pre-tax return on average assets. See Table 6 for a description of the rest of other variables.

As shown in Column 1 in Table 7, the profitability of Indonesian banks has undergone lots of changes over the recent years. In 2008-2009 as well as 2011, the average value of the return on assets was the lowest. This might be due to the financial crisis which struck Indonesia in those years. The magnitude of the financial crisis is reflected by greater differences in profitability among the banks as measured by higher values of standard deviations during the years of crisis and after. The lower profitability is also reflected in the increased values of the cost to income ratio as shown in Column 8. The average value of this indicator increased from 53% in 2007 to reach over 61% in 2011.

The amount of loans granted by the banks in relation to the total assets has also been affected by the crisis. As seen in Column 2, the amount of loans granted slowed down soon after the crisis started and did not recover until 2011. Moreover, the amount of non-performing loans increased substantially in 2009 and started going down in 2011. However, equity to total assets never recovered after the crisis. The value of the equity started to decrease after 2008 and has been decreasing ever since. This may suggest that investors lost confidence in the banking industry during the financial crisis and never regained it again, that also happened in many other countries around the world. The financial crisis led to higher values of industry concentration index as shown in Column 10. This would suggest that in the aftermath of the crisis the Indonesian banking industry was left with larger market players.

3.4 The Econometric Model

Previous studies researching bank profitability are plagued with endogeneity problems. There are several reasons why the endogeneity issue arises when banks' profitability is analysed. First, the endogeneity might be caused by reversed causalities. For example, profitable banks may use extra money to increase their equity; they may also expand quicker and increase their size faster than the less profitable banks; large profits may be also be interpreted as a sign of stability and good reputation, thus they are able to attract more creditors and have a higher share of loans in their portfolio.

Secondly, this study is investigating dynamic relationships, for example it analyses how current profits are affected by past profits. Hence, including the lagged values of the dependent variable in the set of the explanatory variables is another source of endogeneity in

the model. The lagged dependent variable is typically correlated with the error term which contains the fixed effects, for instance, the possibility that a bank is affected by a corporate culture which does not change over time. It is therefore not possible to measure the corporate culture although it affects the profitability of the bank in a systematic way. The fact that we cannot include the variable that describes the corporate culture in the set of explanatory variables means that it is pushed back into the error term. Since the (lagged) profitability measure is in the set of explanatory variables there will be a correlation between this variable and the unidentified measure of corporate culture including in the error term. The correlation between the error term and one of the explanatory variables is a source of bias.

To address these concerns, we use the generalized method of moments developed by Arellano and Bover (1995) and Blundell and Bond (1998), also referred to as the system-GMM estimator. This is an alternative method to the first-difference GMM estimator developed by Arellano and Bond (1991).

The two estimators use two different methods to work around the endogeneity problem. When using the first difference GMM estimator, the data is initially transformed – first differenced – to remove the unobserved individual effects. Though this transformation purges the data of fixed effects, the lagged dependent variable is still potentially endogenous, because the $roa_{i,t-1}$ term in $\Delta roa_{i,t-1} = roa_{i,t-1} - roa_{i,t-2}$ is correlated with the $\varepsilon_{i,t-1}$ in $\Delta\varepsilon_{i,t} = \varepsilon_{i,t} - \varepsilon_{i,t-1}$. Likewise all variables that are subject to reversed causality problem are still potentially endogenous. Arellano and Bond (1991) found a solution to the problem. They propose to use the levels of endogenous variables as instruments. For instance, $roa_{i,t-2}$, $roa_{i,t-3}$,…, $roa_{i,t-T}$ are used as an instrument for $\Delta roa_{i,t-1}$, $roa_{i,t-3}$, $roa_{i,t-4}$,…, $roa_{i,t-T}$ for $\Delta roa_{i,t-2}$ etc. The lagged values of the dependent variable are relevant instruments, since one may expect a high correlation between the current and past values of the variable. There are also valid instruments per construction that are not correlated with the error term. The fact that we are using more than one lagged variable as an instrument makes this estimator very efficient when compared to estimators where only one lagged value is used.

The system-GMM estimator that we are using in our study is even more efficient than first difference GMM by using more information available in the data. The estimator builds on the first difference GMM estimator by adding an extra set of equations. Blundell and Bond

(1998) and Arellano and Bover (1995) suggest that instead of transforming the regressors to remove the fixed effects transforming the instrument – taking first difference – to make them exogenous to the fixed effects. In our case, the first difference instruments are valid under the assumption that the increase in profitability is not correlated with the fixed effects. In other words, we need to assume that the unobservable banks' characteristics, like the management team quality or the corporate culture, are not correlated with the profitability *changes*. This does not mean that the unobservable characteristics are not affecting the *levels* of profitability. What we assume is that "good" banks may have higher levels of profits than the "bad" ones, but in terms of profit changes, good and bad banks are alike. This does not seem to be a strong assumption if we take into account that banks' profits are mainly driven by external forces such as economic crises. In times of economic downturn, profits of all the banks will be affected in the same way which makes this assumption valid. From a technical point of view, the assumption argues that $E(roa_{it}\mu_i)$ is time-invariant. If this assumption holds, then $\Delta roa_{i,t-1}$ is a valid instrument for the variables in levels:

$$E(\Delta roa_{i,t-1}\varepsilon_{it}) = E(\Delta roa_{i,t-1}\mu_i) + E(\Delta roa_{i,t-1}v_{it}) - E(\Delta roa_{i,t-2}v_{it}) = 0 + 0 - 0$$

Where $\varepsilon_{it} = \mu_i + v_{it}$, μ_i is fixed effects and v_{it} is error term. The other advantage of the system-GMM estimator which makes it useful especially in the context of our research is the possibility to include time-invariant variables in the set of the explanatory variables. This is especially what we would like to have as we want to investigate the effect of being an Islamic bank on the profitability. Since none of the banks in our sample have changed its status, the dummy variable that describes whether the bank is Islamic or not is time-invariant.

For the purpose of our study, we adapt the model from Ponce (2012) who analyses the determinants of the profitability of Spanish banks. He uses a panel dataset and includes two dummy variables, in his model, which describe whether the bank is commercial, savings or credit cooperative. Ponce analyses in total 89 Spanish banks that he follows over a period of several years (1999–2009) which gives him the total number of 697 observations. Despite the different focus of the research, his technique is followed due to the similarities. In fact, like Ponce through our study we do use panel data, dynamic model, dummy variable and it is related to the banking industry as well. Therefore, we follow his steps with some slightly changes; our dummy variable describes whether the bank is Islamic or commercial, our focus

is on the Indonesian banking industry and the "revenue diversification" determinant is not used in the equation as it is irrelevant in the context of our research.

The applied technique is known as the system-GMM estimator used to do the model given by the following equation:

$$\begin{aligned} rroa_{it} = \beta_0 &+ \beta_1 rroa_{it-1} + \beta_2 Loan/TA_{i,t} + \beta_3 NPL/GL_{i,t} + \beta_4 LLP/NL_{i,t} \\ &+ \beta_5 Eq/TA_{i,t} + \beta_6 Dep/TL_{i,t} + \beta_7 DepGR_{i,t} + \beta_8 CIR_{i,t} + \beta_9 Size_{i,t} \\ &+ \beta_{10} IC_{i,t} + \beta_{11} GDP_t + \beta_{12} Inflation_t + \beta_{13} Interest_t \\ &+ \beta_{14} Islamic_i + \varepsilon_{i,t} \end{aligned} \quad (1)$$

In our specific model, *Loan/TA*, *Eq/TA* and *Size* are assumed to be endogenous. In this case, the causality may run in both directions, i.e. from *Loan/TA*, *Eq/TA* and *Size* to *ROA* and vice versa. It can be assumed that *Loan/TA* may be endogenous because the share of loans in the total assets may affect the banks' profitability and highly profitable banks may attract many creditors ending up with many loans in their portfolio. In other words, the share of loans in the total assets may affect profitability and at the same time the profitability may affect the shares of loans in total assets. In the same manner, banks with higher shares of equity in the total assets may have more resources to grant credit and be more profitable, while highly profitable banks will benefit from investors' confidence and appeal to new shareholders. As noted previously, the *Eq/TA* will affect profitability and vice versa. *Size* may influence the profitability, for example larger banks will tend to be more profitable. However, unprofitable banks will face difficulties growing, thus causing the reversed causality problem again. Finally, we instrument the endogenous variables in a way described above.

3.5 Significance Test

Equation 1, p.56, reflects the hypotheses stated in Table 6. It shows the determinants of banks' profitability whose statistical significance is tested. The test is designed to find out whether the determinants have statistical influence on the selected performance measure. We apply the z-test for statistical significance and is typically carried out when panel data models are estimated. The test consists of the following set of hypotheses:

$$\begin{aligned} &H_0: \beta_i = 0 \\ &H_1: \beta_i \neq 0 \end{aligned} \quad (2)$$

Where $i = 0, \dots, 14$. The null hypothesis states that β_i is equal to zero while the alternative hypothesis states that β_i is different to zero. Although, Table 6 suggests using one-sided hypotheses, in this study two-sided hypotheses are used. This is motivated by the results of the empirical analysis which shows that some of the variables have different signs than expected. If we had used two-sided hypotheses, we must have rejected the null hypotheses for those variables, which would lead to the conclusion that the variables are statistically not significant. Using one-sided hypotheses one can still conclude that the variables are statistically significant, even if they have different signs than initially expected.

In order to perform the test showed in equation 2, we calculate the following z-statistic:

$$z_{\hat{\beta}_i} = \frac{\hat{\beta}_i}{s.e.(\hat{\beta}_i)}. \tag{3}$$

Where $i = 0, \dots, 14$, $\hat{\beta}_i$ is the estimate of β_i, and $s.e.(\hat{\beta}_i)$ is the estimated standard error of $\hat{\beta}_i$. The above statistic has the standard normal distribution. We reject the null hypothesis when it is larger than the critical value as equal to the absolute value of the inverse quintile function of the standard normal distribution assessed at $\alpha/2$, $F_z^{-1}\left(\frac{\alpha}{2}\right)$, where α is the significance level of the test.

3.6 Other Post-Estimation Tests

A series of post-estimation tests are carried out in order to investigate the validity of assumptions and the overall fit of the model considered here. In particular, the overall fit is tested using the Wald test as well as the crucial assumption for the validity of the GMM estimator that the instruments are exogenous using the Sargan/Hansen test of overidentifying restrictions.

The Wald test is a substitute of the well-known F-test to investigate the overall fit of the model. The test is based on the following set of hypotheses:

$$\begin{aligned} &\mathrm{H}_0: \beta_1 = \ldots = \beta_{14} = 0 \\ &\mathrm{H}_1: \beta_1 = \ldots = \beta_{14} \neq 0 \end{aligned} \tag{4}$$

The Wald test works by testing the null hypothesis that all the parameters are equal to zero apart from the constant. If the test fails to reject the null hypothesis, this suggests that the

model reduced only to the constant term will not necessarily harm the fit of that model. The test reflects the idea that a predictor with a coefficient that is very small relative to its standard error is not doing well in terms of predicting the dependent variable. The formula for a Wald test is given by Fox (1997) and since it is quite complex formula it is not mentioned here. The test statistic is known to have a χ^2 distribution with K-1 degrees of freedom where K is the number of variables including in a model.

The Sargan test is a test of overidentifying restrictions. Since we use more instruments than instrumented variables, we need to test whether the set of instruments is valid. The joint null hypothesis is that the instruments are valid instruments, i.e. they are uncorrelated with the error term, and that the excluded instruments are correctly excluded from the estimated equation. If the null hypothesis of joint validity is true, the vector of empirical moments is randomly distributed around 0. Hence, if the null hypothesis is rejected, it is a clear indication that the chosen set of instruments is not valid. The test statistic is based on empirical moments and is described in Wooldridge (2002). It is known to have χ^2 distribution with L-K degrees of freedom where L is the number of instruments and K is the number of variables.

The Hansen test is based on the same set of hypotheses and is carried out when robust standard errors are used. The test statistic is also known to have χ^2 distribution with L-K degrees of freedom where L is the number of instruments and K is the number of variables. Similar to the Sargan test, if the null hypothesis is rejected, it is a clear indication that the chosen set of instruments is not valid.

4. Results

Table 8 presents the main results of our study. It shows the determinants of banks' profitability in Indonesia based on the model described above. Two indicators have been used in order to measure banks' performance. First, the *ROA* is used that indicates how large banks' profits were with respect to the total assets. This measure tends to be less volatile in time of crisis, since the assets of the financial institution are not subject to dramatic changes during turbulent times. Additionally, the *ROE* is used as an alternative measure of banks' performance. However, this indicator is more volatile especially in turbulent financial times, therefore it is not a good measure of banks' profitability which is reflected in our results. The results of the regression analysis with the latter indicator are also presented for the completeness of the analysis.

Table 8
Determinants of Bank Profitability in Indonesia

Variables	ROA			ROE		
	coeff.	*s.e.*	*robust s.e.*	*coeff.*	*s.e.*	*robust s.e.*
Column No.	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Dep. Var.$_{(t-1)}$	-0.117	0.026***	0.088	0.195	0.614	0.415
Loan/TA	0.076	0.030**	0.044*	2.727	1.481	2.505
NPL/GL	0.139	0.046***	0.083*	6.768	7.117	7.120
LLP/NL	-0.064	0.030**	0.099*	-2.266	1.709	2.353
Eq/TA	0.257	0.053***	0.146*	1.364	3.004	1.961
Dep/TL	0.049	0.017***	0.042	0.395	0.938	0.685
DepGR	0.004	0.001***	0.003	0.052	0.074	0.060
CIR	-0.032	0.007***	0.019*	-0.313	0.477	0.286
Size	0.039	0.009***	0.016**	0.059	0.524	0.274
IC	-1.094	0.286***	0.524**	-0.292	16.336	8.670
GDP	-0.052	0.128	0.161	12.887	7.079*	12.096
Inflation	-0.032	0.046	0.056	-1.702	2.364	1.907
Interest	0.628	0.182***	0.241***	7.771	9.223	9.830
Islamic	-0.018	0.005***	0.013	-0.200	0.284	0.251
Constant	-0.744	0.176***	0.311**	-4.228	9.698	6.218
N		244			244	
Wald	446.55	0.000	-	20.89	0.104	-
Wald (*robust*)	82.47	-	0.000	5.54	-	0.977
Sargan	22.95	0.085	0.085	12.01	0.678	0.678
Hansen	11.3	-	0.731	2.73	-	1.00

This table reports the determinants of the profitability of Indonesian banks during 2006-2012 using the system-GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). The sample comprises 54 banks (245 observations). ROA is the pre-tax return on average assets. ROE is the pre-tax return on average equity. Significance levels are indicated as follows: *** significant at 1% level; ** significant at 5% level; * significant at 10% level. Description of the rest of other variables: Loan/TA – loans to total assets ratio, NPL/GL – non-performing loans to gross loans ratio, LLP/NL – loan loss provisions to net loans ratio, Eq/TA – equity to total assets ratio, Dep/TL – customer deposits to total liabilities ratio, DepGR – customer deposits, CIR – cost-to-income ratio, Size – total assets, IC – industry concentration index, GDP – gross domestic product, Inflation – consumer price index inflation, Interest – interest rate.

As seen in Column 1 of Table 8 above, most of the hypotheses as described in Table 6 are confirmed. The majority of the variables have the expected signs with only a few exceptions. As expected, *Loan/TA*, *Eq/TA*, *Dep/TL*, *DepGr* and *Size* are affecting current profitability positively, while *LLP/NL* and *CIR* have a negative effect on the current profitability. To our surprise, *NPL/GL*, *IC*, *GDP*, *Inflation*, *Interest* and *Islamic* have different signs than were predicted initially. However, from those variables *GDP*, *Inflation* and *Islamic* are not

significantly different from zero when robust standard errors are used. Thus, their signs cannot be verified. With regard to the other variables such as *Interest*, the negative sign is not unusual. The *NPL/GL* has a positive sign while it was expected to have a negative sign. In the light of other studies on determinants of banks' profitability this is an unexpected result. It can be explained by the fact that our sample covers very turbulent times. In times of a financial crisis, the relationships that we expect to see in stable periods can be difficult to verify. With concern to *IC*, it was assumed that the companies with large market shares were more profitable than companies with lower market shares. Our analysis shows the opposite of this; banks with a smaller market shares tend to be more profitable than banks with a large market shares.

Most of the variables in our set are significantly different from zero as seen in Table 8. To account for the possible heteroskedasticity or autocorrelation, we calculate standard errors that are robust to these problems. After using robust standard errors, most of the variables are not as significant as in the case with non-robust standard errors. This may result from the fact that heteroskedasticity or autocorrelation are present in our data. However, even if robust standard errors are used many variables are still significant at 5% or 10% significance level as seen from Column 3 of Table 8. Unfortunately, *Islamic* is not significant at any common significance level when robust standard errors are used. Thus, the results of the IMF study by Krasicka and Nowak (2012) whose analysis suggests that Islamic banks tend to hold more capital and be more profitable cannot be confirmed. Our results, notwithstanding, are in line with another IMF paper by Čihák and Hesse (2008) who provide empirical evidence which shows that there are no major differences, neither negative nor positive, between Islamic and conventional institutions with respect to the risks involved. The reason why *Islamic* is not statistically significant in our study may be the small number of observations that we have on Islamic banks. In the sample used in this study, there are only four Islamic banks in comparison to fifty conventional banks which would explain the large standard errors of *Islamic*.

The goodness-of-fit is tested using the Wald test. The results of the test are presented at the bottom of Table 8 (p.60). As seen from the table, the value of the statistic rejects the null hypothesis that all coefficients are equal to zero in favour of the alternative hypothesis that at least one of them is significantly different from zero. The null hypothesis is rejected at any common significance levels using both robust and none robust standard errors. These results

are valid only if *ROA* is used as the profitability measure. With regards to *ROE* we cannot reject the null hypothesis, which confirms our earlier expectations that *ROE* is not a suitable performance measure.

Regarding the test of overidentifying restrictions, we compute both the Sargan and Hansen test. The latter is calculated only when robust standard errors are applied. For both cases when *ROA* and *ROE* are used, we cannot reject the null hypothesis that the instruments are valid. Thus, the results of the test suggest that we have selected a proper set of instruments.

Although we analyse both *ROA* and *ROE*, we focus only on the former. The latter is not a good indicator of banks' performance due to its noisiness in times of financial turbulence. During the crisis the equity prices change by a large amount and so does the banks' equity value. As a result, the return on equity tends to be more unstable than usual and it does not convey the true picture of banks' profitability. Table 8 shows the results of analysis with *ROE* used as a performance indicator. However, as seen from Columns 5 and 6 none of the variables are significant at any common significance level. Those results are included here for comparability with other studies on banks' profitability determinants.

Conclusion

Given previous studies on banks' profitability, this research proposes several factors that could affect the banks' performance in Indonesia. We have focused on the determinants of profitability that describe the asset structure and quality such as the loans to total assets ratio, non-performing loans to gross loans ratio and loan loss provisions to net loans ratio; the capitalisation such as equity to total assets ratio; the financial structure such as customer deposits to total liabilities ratio and annual customer deposits growth rate; the efficiency such as cost-to-income ratio; the industry concentration; the size of the banks such as total assets, as well as a set of macroeconomic variables such as annual real gross domestic product growth rate, consumer price index annual inflation rate and the main interest rate. The previous section (Results p.59) has shown that only a few of the proposed factors are really affecting banks' profitability. In terms of the factors that describe the asset and financial structure it is difficult to draw a conclusion as to whether they play a great role in determining banks' profitability since they are slightly significant as revealed in the previous section. More clear-cut conclusions can be drawn in terms of variables that describe the market power. This study suggests that the market share represented by the industry concentration variable as well as the size of the banks have been the main driving factors of banks' profitability in Indonesia recently. In general, large banks survive the financial crisis better than small banks. However, among the large banks, the banks with exceptionally large market shares achieved lower profitability rates than the banks with average or small market shares as revealed by our empirical analysis. These results are confusing given the fact that both industry concentration and size are based on the total assets. From our point of view, this can be due to the fact that the largest Indonesian banks might have been those most exposed to the subprime mortgage crisis. To some extent, the large size could have helped the Indonesian banks to survive the financial crisis since they have had larger market power and could dictate the conditions on the market over the crisis period. At the same time, the biggest banks among the large banks, i.e. the banks with high values of industry concentration index, were the most leveraged ones therefore when the crisis hit they made proportionally more losses than any other banks. On one side of the argument, being a "big player" might be advantageous as large banks may dictate market conditions. On the other hand, it may create a burden since large banks tend to be more exposed to negative financial market outcomes and therefore be more leveraged.

With regards to the main aims of this paper which are to investigate whether there are any significant differences in profitability between Islamic banks and commercial banks in Indonesia, our results have shown that there may not be any differences. Our previous analysis has revealed that at the common significance levels and using robust standard errors we cannot tell whether there are statistical differences between Islamic and commercial banks profitability in Indonesia. This result means that either there are no differences in banks' profitability or that we could not reveal these differences using the available dataset. Our results may be inconclusive due to several reasons. First, we have a limited number of observations on Islamic banks; our dataset contains information about four Islamic banks only. From those banks we do not have observations covering all of the timescale. Thus, the number of observations for Islamic banks is much smaller than the number of observation for non-Islamic banks in the dataset. Secondly, the choice of the sample period might have affected the results as well. The sample analysed in our study covers the years of the world financial crisis (2008-2011). During those years it was a very turbulent time for the banking industry; many banks went bankrupt, bailed out by their respective governments or had to deal with huge losses. Most of the research that investigates the determinants of banks' profitability during this period finds it difficult to confirm the relationships between those factors and bank profitability. This is because many variables experience extreme values during those years and also the governments affect the banking industry by pumping huge amount of money into it. Therefore, the picture of what is determining banks' profitability is blurred and the relationships that you expect to see in less turbulent periods cannot be confirmed using observations from recent years only. Despite the inconclusive results of our study in terms of the profitability of Islamic banks, we are more inclined to believe that there are no differences between Islamic and commercial banks within Indonesia. The results of this study are in line with the research initiated by the IMF. In the IMF research paper, Čihák and Hesse (2008) provide empirical evidence that there are no major differences, neither negative nor positive, between Islamic and conventional institutions.

With concern to policy implications, this study does not call for any special treatments of Islamic banks since we could not conclude if they are better or worse in terms of performance, than the non-Islamic banks. In fact, there should not be any regulation changes that favour Islamic banks over conventional banks, although some studies show that banks which follow the Sharia Law achieve higher profits (Hasan and Dridi, 2010). Our research does not confirm this belief and therefore does not recommend any preferential treatments for Islamic banks.

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