CHAPTER 3 : LITERATURE REVIEW

This chapter provide the relevant literature on determinants of banks performance. It begins with a brief overview of studies conducted on single country and a panel of countries before moving on to explain on the two broad categories of determinants of profits as identified in literature. As this paper attempts to examine interest margins and bank profits, the literature on bank profits, interest margins and literature on both interest margins and bank profits are discussed. Included in this chapter, is also a review of the recent study on business cycle and bank profits, and finally the empirical studies on Latin America and East Asia.

3.1 CROSS COUNTRIES AND SINGLE COUNTRY STUDIES

Early studies on banks performance were mainly focus on the United States (Haslem, 1969; Heggestad and Mingo, 1976). Short (1979) is one of the very first to examine banks profitability outside the United States, examining the relation between profit rates of 60 banks in Canada, Western Europe and Japan for the period 1972 – 1974. Using a panel of countries, Bourke (1989) and Molyneux and Thornton (1992) conduct research on banking profit; Demirguc-Kunt and Huizinga (1999) and Abreu and Mendes (2001) on bank interest margins and profits; while Saunders and Schumacher (2000) and Brock and Suarez (2000) on interest margins. Studies on banking performance in a specific country include studies on bank profits by Berger (1995a) and

Athanasoglou, Brissimis and Delis (2008) and Kosmidou (2008); bank interest margins and profits by Ben Naceur and Goaied (2003); and Ho and Saunders (1981) on net interest margins. To our knowledge, the study on determinants of both interest margins and profits together, are few, relative to individual analysis on bank profits or interest margins.

3.2 INTERNAL AND EXTERNAL DETERMINANTS

Bank profits (measured as profits divided by assets) and bank interest margins (measured as net interest income divided by assets) are two measures of banks performance (Demirguc-Kunt and Huizinga, 1999 & 2000). The banking literature divides determinants of bank profitability into factors internal and external to the bank (Bourke, 1989). Internal factors are bank-specific, where the banks management and staff have direct control, where else, external factors are not related or not within the banks management control (Haron, 2004; Athanasoglou et al., 2008). Bourke (1989) in his paper, highlighted the internal variables used by earlier researchers in the 1960s to early 1980s (using mostly United States banking data), which include capital and liquidity ratios, loan/deposit ratios, loan loss expenses and overhead expenditures, while for external factors, the variables include regulation, bank size and economies of scale, competition, concentration, growth in market, interest rates as a proxy for capital scarcity and government ownership) of banking profitability.

Haron (2004), who study the effects of factors that contribute towards the profitability of Islamic banks, relates that apart from financial statements variables (balance sheet and income statement), non-financial statement variables which are within banks management discretion, are also internal determinants. Examples are the number of branches, status of the branch (e.g. limited or full-service branch, unit branch or multiple branches), location and size of the bank are considered controllable variables as these are within the management discretion. He opined that if the establishment of new branches is restricted by regulations, then the variable is considered external to the bank. Earlier researchers such as Bourke (1989) viewed bank size as external, while researchers such as Ben Naceur & Goaied (2003) and Kosmidou (2008)) considered size to be an internal variable.

External factors are not within the control of management. This include macroeconomic indicators (GDP growth, GDP per capital, interest rates, inflation, money supply), concentration, competition and regulation which influence the performance of banks.

3.3 BANK PROFITS

Earlier research in banks profitability was structure-conduct-performance (SCP) based or market-power, which sought to resolve the “collusion-versus efficiency” debate on empirical criteria. (Goddard et al., 2004). The focus was on finding a positive relationship between concentration and profitability. It should be noted

that there are many studies on market power and efficiency structure hypothesis in banking literature, but the focus of this paper is not on distinguishing between them, but to adopt concentration as one of the variables in determining banks performance.

Short (1979) stated that there had been at least ten published studies on the effect of concentration on bank profit rates in various banking markets in the United States but less covered in other countries. As such, he examined the relation between the profit rates and concentration of 60 banks in 12 different countries (in Canada, Western Europe and Japan) and found evidence to support the view that greater concentration leads to higher profit rates. The author measure profit rates by the annual average ratio for 1972 – 1974 of after-tax profits to the total shareholders' funds including retained earnings and general reserves. He used five various measures of concentration in his linear regression functions. Concentration is measured country by country in terms of deposits at the end of 1973 by the Herfindahl concentration index (the sum of squares of each bank's deposit market share), its inverse, and concentration ratios (share of the market held by the largest, two largest and three largest banks). Apart from concentration, he also considered other explanatory variables, placing them into two categories, namely, those that are unique to each country and those that are unique to each bank. Explanatory variables unique to each country include central banks discount rates and nominal interest rate on long-term government securities, as proxy for capital scarcity. Variables that are unique to each banks include, one dummy variable to distinguish government-owned (non profit

maximisers as a matter of government policy) from privately owned commercial banks; bank size (total assets converted into US dollars) to take into account economies or diseconomies of scale; and the rate of growth of assets, as some banks might sacrifice profits to grow faster in order to earn higher profits in the future to increase market share or gratify managers. To take into account literature on commercial bank capital adequacy which supposes that banks want to maximize leverage in order to maximize profits, leverage (the ratio of total assets to shareholders' funds) are also included. Banks with the highest leverage will have the highest rate of return on equity if all banks have relatively the same rate of return on assets. The results of Short (1979) studies showed that government-ownership dummy variable (negative relationship), concentration measures (positive) and the two capital scarcity proxies (positive) are significant in his regression models.

Following Short (1979) major study of international bank profitability, Bourke (1989) reviews the performance and examines the internal and external determinants of profitability of 90 banks in twelve countries in Europe, North America and Australia from 1972 – 1981. He replicated and extended earlier research undertaken by Short (1979), using a pooled time series approach to estimate a linear equation. While Short (1979) use one performance measure, Bourke (1989) used various performance measures including return on capital (such as net profit before tax as % of capital and reserves, net profit after tax as % of capital and reserves), and return on assets (net profit before tax as % of total assets). In his study, capital ratios (capital and reserves as % of total

assets), liquidity ratios (cash and bank deposits and investment securities as % of total assets) and interest rates (long-term bond rate) are positively related to profitability (profit before tax/total assets), while staff expenses show an inverse correlation. In addition, his findings showed that concentration is positively and moderately related to profitability. On liquidity, the author stated that conventional wisdom is that liquidity holdings represent an expense, and as such the positive relationship between liquidity and bank profits is unexpected. The other two independent variables, government owned dummy variable and money supply, are not significant in the pre-tax return on assets equation.

Molynuex & Thornton (1992) replicated Bourke (1989) methodology to evaluate the determinants of European bank profitability. Pasiouras and Kosmidou (2007) considered Molyneux and Thornton (1992) to be the first to examine the determinants of banks profitability in European Union, as Short (1979) and Bourke (1989) not only focus on European countries, but also included other countries (Japan, Canada, America and Australia) in their study on banks profitability. They used a pool sample of 18 European countries over the period 1986-1989 to estimate linear equation, regressing performance measures against a variety of internal (staff expenses, capital ratios and liquidity ratios) and external (concentration ratios, government ownership, interest rates, market growth and inflation) determinants of bank profitability. Their findings on positive relationship between capital ratios and nominal interest rates are consistent with Bourke (1989) study. In their studies, liquidity has inverse relationship with profitability, which is to be expected as liquidity holdings represent a cost to banks, while

government ownership is positively correlated with bank profits. Concentration is positively correlated with pre-tax return on assets, which is consistent with the traditional structure-conduct performance paradigm. Interestingly, the authors results indicated staff expenses to be positively related with bank profits, which suggest high profits earned by firms in a regulated industry may be appropriated in the form of higher payroll expenditures.

Berger (1995a) made an important contribution on the relationship between capital and earnings in banking. According to conventional wisdom, a negative relationship between capital-asset ratio and after-tax return on equity is hypothesized, as investors expected return on equity is lower since higher capital ratio corresponds with lower risk. In addition, higher capital ratio lowers after-tax earnings by reducing the tax shield provided for interest payments. Using the Granger causality model, he examined the US banking sector over the period 1983 – 1992 and found that return on equity and capital-to-asset ratio are positively related. Lower expected cost of financial distress and a signal for better future performance contributed to the positive relationship between capital and earnings. (Unite and Sullivan, 2003).

In a more recent study, Kosmidou (2008) used an unbalanced pooled time series dataset of 23 Greek commercial banks from 1990 – 2002, during the period of EU financial integration. He used a fixed effects regression to examine the influence of internal factors (bank's-specific characteristics) and external factors (macroeconomic and financial industry structure) on the profits of Greek

commercial banks. His results indicated that money supply growth has no significant impact on profits, whereas the financial industry structure indicators of banks assets to GDP, stock market capitalization to banks assets and concentration are all statistically significant and negatively related to return on average assets. As for bank characteristics and macroeconomic indicators, higher bank profits are associated with well-capitalized banks, lower cost to income ratios and GDP growth, while inflation has a negative impact.

3.4 BANK INTEREST MARGINS

According to Saunders and Schumacher (2000), there are two alternatives modeling frameworks to study the determinants of bank interest margins, namely, the dealership approach, originally proposed by Ho and Saunders (1981) and a micro-model of the banking firm approach. In the micro-model of the banking firm approach, the demand and supplies of deposits and loans simultaneously clear both the markets, as the banking firm is viewed as in a static setting. The bank is viewed as a dynamic dealer in the dealership approach, setting interest rates on loans and deposits to balance the asymmetric arrival of loan demands and deposit supplies. Nevertheless, we found that apart from the two models framework mentioned by Saunders and Schumacher (2000), there are other approaches adopted by researchers, such as Demirguc-Kunt et al., 2004 who used a linear regression function in the study of factors that determine net interest margins.

Ho and Saunders (1981) developed a theoretical model of bank interest margins, in which the bank is viewed as a risk-adverse dealer in the credit market, acting as an intermediary between the demander and supplier of credit. They defined interest margin as the spread between the interest revenue on bank assets and interest expense on bank liabilities as a proportion of average bank assets, also called the banker's mark-up. A two-step regression is performed on the dealer model. In the first approach, bank spread is regressed on bank-specific variables (implicit interest payments, default premium on loans and opportunity cost of required reserves), and the constant term in the regression is a measure of the "pure" spread for the country's financial system. In the second step, the constant terms are regressed against macroeconomic variables. According to Angbazo (1997), the dealership model of interest margins provides a theoretical model for investigating the relationship between interest rate risk and bank net interest margins.

Angbazo (1997) extended the dealership model of Ho and Saunders (1981) and some other researchers, to include the risk of loan default. He examined the determinants of bank net interest margins for a sample of US banks using annual data for 1989-1993. The results of the pooled sample suggest positive association between bank interest margins and default risk (ratio of net loan charge-offs to total loans), the opportunity cost of non-interest bearing reserves, leverage (ratio of core capital to total assets) and management efficiency (ratio of earning assets to total assets).

Saunders and Schumacher (2000) applied the Ho and Saunders model, and ran the two-stage regressions on 6 European countries (France, Italy, Germany, UK, Switzerland and Spain) and the US during the period 1988 – 95 for a sample of 614 banks. Their goal was to study the impact of the structure of bank competition and interest-rate volatility on net interest margin (NIM, the spread between a bank's net interest earnings and expenses as a percentage of interest-earning assets). They analysed net interest margin by following a two-step process. The first step is to estimate the pure spread (intercept) by regressing NIM on implicit interest, opportunity cost of reserves and capital requirements (factors which cannot be built directly into the model) of individual banks in each country for each period. Implicit interest is measured by non-interest expense minus other operating income divided by total average assets, economic cost of holding reserves by the ratio of non-interest-earning assets to total assets, and capital as percentage of assets to proxy for capital requirements. The second step is to analyse the effects of market structure (monopoly power, dummy variable) and interest-rate volatility on the pure spread. The results of their studies showed that implicit interest rate (a fee proxy), opportunity cost of holding reserves and capital-to-assets ratio are positively related to NIM. To finance implicit interest payments, banks increased their actual or explicit NIM (increase loan rates or reduce interest deposit rates); and banks demand higher NIM to lower the cost of holding high capital ratios (as it erodes profit). At the second stage, the authors found pure spreads or margins to be sensitive (positively related) to both market structure and interest-rate volatility effect.

On the other hand, Demirguc-Kunt, Laeven & Levine (2004), used a generalized least squares estimator with random country effects to estimate a linear net interest margins equation. They examined the impact of bank regulation, market structure and national institutions on bank net interest margins (including on overhead expenditure, for robustness check) using 1,400 banks across 72 countries over the 1995 - 1999 period, while controlling for macroeconomic, financial, and bank-specific traits. A wide range of independent variables is used in their study, totaling 24 independent variables, which include fraction of entry denied, activity restrictions, reserve requirements, banking freedom (for regulatory variables), for different concentration measures (market structure), economic freedom, property rights, level of institution development, GDP per capita (institutional impediments to competition), inflation, GDP growth, value traded (measure of stock market development), state ownership (macroeconomic and financial system control variables), bank size, bank equity, fee income, liquidity, risk, overhead, market share (bank-specific control variables). Based on their empirical study, lower margins tend to be associated with large banks, banks that engage in fee-based activities, high fraction of liquid assets, low market share and low capital. While tighter regulation on bank entry, restrictions on bank activities and regulation that inhibits bankers' freedom to conduct business have positive impact on bank net interest margin, bank regulation becomes insignificant when controlling for national indicators of economic freedom or property rights protection, while these Institutional development explain cross-bank differences in net interest margins. Bank regulation cannot be viewed in isolation from the overall institutional framework, as policies and

regulation stem from national institutions. Finally, concentration is positively associated with net interest margins but the relationship breaks down when controlling for regulatory impediments to competition and inflation.

3.5 BANK PROFITS AND INTEREST MARGINS

To our knowledge, relatively less research is conducted on determinants of both bank profits and spreads in one literature, as compared with studies on bank profits or research on bank margins.

Demirguc-Kunt and Huizinga (1999) is one of the very few researchers who studied the underlying determinants of both bank profits and net interest margins, and their studies are often cited by other researchers (such as Biker and Hu, 2002: Ben Naceur and Goaied, 2003). They use bank-level data for 80 developed and developing countries in 1988-95 to analyse how bank characteristics and the overall banking environment affect how bank functions, as reflected in bank interest margins and bank profitability. The authors also introduced foreign and domestic ownership variables, corporate income tax variable and legal and institutional indicators, not covered in previous studies. Other variables in their study of banks in many countries include macroeconomic conditions (inflation, GDP, GDP per capital), financial structure (concentration, size, banks assets/GDP, stock market capitalization/GDP), deposit insurance regulation and bank-specific variables (such as equity, overhead, loans, non-interest earning assets). An interesting aspect of their study is the interaction of

certain variable with the country's gross domestic product (GDP) per capita, to gauge whether some of these determinants affect banking differently in developing and industrial countries. Their regressions equations are estimated using weighted least squares pooling bank-level data across 80 countries for the 1988 – 95 time periods. The weight is the inverse of the number of banks in a given year, to correct for the number of banks which varies across countries.

The results of Demirguc-Kunt and Huizinga (1999) indicated that well capitalized banks have higher net interest margins and are more profitable, while official reserves and overheads depress bank profits. Banks passed on their overhead cost and corporate income tax to their depositors and lenders to some degree. In developing countries, foreign banks have higher interest margins and profitability than domestic banks. On macroeconomic factors, inflation is associated with higher realised interest margins and higher profitability, while surprisingly, real GDP or output growth, is not significant in both net interest margin and before-tax profits equations. Regarding financial structure, bank concentration ratio positively effects bank profitability, and larger banks tend to have higher interest margins. The authors also examined the relationship between legal and institutional variables (contract enforcement dummy, corruption index and law and order index) and banks performance and found the relationship to be negative and with a more pronounced effect on developing than in industrial countries. When contract enforcement is poor, banks may require higher interest margins and investors require higher profitability to compensate for the additional

risk. Likewise, a cleaner government and an effective legal system reduce the required risk premia on bank lending.

On another linked paper, Demirguc-Kunt and Huizinga (2000) considered the impact of financial development on bank profits and margins, including being the first to examine the impact of financial structure, i.e. the relative development of banks versus markets on banks performance. The authors used bank-level data for all OECD countries as well as developing countries over the 1990-1997 period. Their empirical framework extends their earlier work in Demirguc-Kunt and Huizinga (1999) on determinants of bank profitability and interest margins to include indices of financial structure, namely, bank credit/GDP and market capitalization/GDP, as indicators of bank and stock market activity or level. They found that in developed financial systems, bank profits and margins are not statistically different across bank-based and market-based systems. The findings indicated significantly higher levels of bank profits and margins are found in underdeveloped financial systems and financial structure is important. As bank development increased, there is greater competition among banks, which leads to increased efficiency and lower bank profits and interest margins. Stock market development in underdeveloped financial systems improves profits and margins of banks, for example, the demand by stock markets for better and more accessible information, allowed banks to evaluate credit risk thus improving bank profits, indicating complementarities between banks and stock market.

Abreu and Mendes (2001), followed in the footsteps of the works of Demirguc-Kunt and Huizinga (1999) and some other researchers to evaluate the interest margins and profitability determinants of four EU countries (Portugal, Spain, France and Germany). They used a set of bank characteristics, macroeconomic and regulatory indicators, including financial structure variables. Their findings indicated that the determinants of net interest margins and bank profits are not the same, for example, the ratio of labour to total assets impact only net interest margins and operating cost have positive impact on net interest margins measures but not on profit measures. Nevertheless, both loan to assets and equity to assets ratios have positive impact on interest margins and profitability.

As for study of bank profits and net interest margins in a particular country, Ben Naceur and Goaeid (2003) examined factors that impact 10 Tunisian banks performance over the period 1980 – 2000. Their estimation technique is balanced panel regressions with random effects on general least squares procedures. Their results showed that individual bank characteristics explained a substantial part of the within-country variation in bank interest margins and net profitability. Overhead, capital ratios and bank loans have positive relationship with bank interest margins and profitability, while size is negatively correlated with net interest margins equations, which suggest scale inefficiencies. On the positive relationship between cost and banks performance, the authors suggest that banks overhead costs are passed on to its depositors and lenders (in terms of lower deposit rates/or higher lending rates). Macroeconomic indicators such as growth and inflation have no incidence on bank performance, whereas

inflation impact bank spreads positively. On financial structure indicators, concentration has a negative and significant impact on net interest margins, which suggest that concentration is less beneficial in terms of profitability to the Tunisian commercial banks than competition. Their findings also indicated that stock market development has a positive effect on bank profitability, reflecting complementarities between bank and stock market growth.

3.6 BANK PROFITS AND BUSINESS CYCLE

A recent strand of literature relates to the study of banks profitability and business cycle. Biker and Hu (2002) analysed the degree of correlation between banks' profitability and the business cycle of 26 OECD countries for the period 1979 – 2000. The authors considered real GDP growth to be the single most useful indicator of business cycle. Their study is prompted by concerns about possible (acceleration of) procyclical behaviour of banking, which might threaten macroeconomic stability, arising from the new Basel capital accord (introduced by Bank for International Settlement in 2001), which is a more risk-sensitive method for determining the minimum capital required to absorb losses, in particular credit losses. Basel II is an international standard for the amount of capital that banks need to put aside to deal with current and potential financial and operational risks (Finance & Development, June 2008). Unlike the fixed weights attached to borrowers under the 1988 Basel Accord, capital requirements which are sensitive to business cycle may result in banks becoming more procyclical. Banks, as

suppliers of credit, may withhold loans extension during a cyclical downturn, thus reinforcing the cyclical slowdown or credit crunch.

The authors, Biker and Hu (2002) used a relatively long period of banks data to cover all phases of the business cycle for their investigation, and stated that it is not their intention to shed light on the question of to what extent Basel II will add to the alleged procyclical behaviour, but rather a backward looking analysis on the procyclical behaviour of banks in the last two decades. They focus on the influence of business cycle (macroeconomic variables such as real GDP growth, unemployment rate and interest rate differential) and bank specific factors (such as loans, capital and reserves) on profits. They found real GDP and other cyclical variables (unemployment, inflation) to have significant effects on profits. Profits appear to move up and down with business cycle, allowing for accumulation of capital in boom periods. At GDP growth level of over 2 %, profits turn out to be almost 2 ½ times those at GDP growth levels below 2 %. Their findings contrast that of Demirguc-Kunt and Huizinga (1999) which found no effects of GDP growth on profits.

Following Biker and Hu (2002), Athanasoglou et al. (2008) explored the relationship between bank profitability and the business cycle of Greek banks during the period 1985-2001. The authors stated that literature has not focused explicitly on the effect of business cycle on bank profitability, as much of it uses cross-sections or panels with a small time dimensions, and the measures used to proxy the cyclical behaviour are not always appropriate. They introduced

deviation of real GDP from its segmented trend to estimate the cyclical output, distinguishing between periods in which output is above its trend value and when output is below its trend value. Their results indicated the effects of business cycle to be asymmetric, as it is positively correlated to business cycle only when output is above trend. It is not within the scope of this paper to cover the effect of business cycle on banks profitability, due to the small time dimension (2003 – 2008).

3.7 BANK PROFITS AND INTEREST MARGINS IN EAST ASIA AND LATIN AMERICA

In the case of East Asia, to our knowledge, literature describing the determinants of bank profits and spreads in East Asia banking sector is sparse, relative to US and Europe, while for Latin America, studies are mostly on net interest margins due to the relatively high bank spreads.

Ben Naceur & Goaeid (2003) in their paper on Tunisia banks performance cited the works of Guru, Staunton and Balashanmugam (2002) on 17 Malaysia commercial banks over the 1986-1995 period. Among the internal factors (liquidity, capital adequacy and expenses management), the Malaysian study showed that efficient expenses management is the most significant in explaining high bank profitability, while for external factors (ownership, firm size and external economic conditions), high interest ratio is associated with low bank profitability and inflation has a positive effect on bank performance. Rosli and Bakar (2003)

studied on the performance of Islamic counters of mainstream banks in Malaysia during 1996 – 2001 period, and found that the higher return on assets (ROA) of the Islamic banking scheme banks were due to lower overhead expenses, as the Islamic banking scheme utilized the overheads of mainstream banks.

In the Philippines, Unite and Sullivan (2003) examined the relaxation of foreign bank entry regulations on interest rate spreads and profits of 16 Philippines domestic expanded commercial banks in operations during the 1990-1998 period. Their analysis also included 3 other independent variables, namely, non-interest income, operating expenses and risk. The regressions are estimated using a random-effects model. Bank-level variables (non-interest earning assets, equity levels, operating expenses and relative bank size) and macroeconomic indicators (inflation, GDP, reserves requirements, measure of capital scarcity) are included as they may affect the independent variables. Their findings showed that with foreign bank entry, interest rate spread and profit narrowed with increased competition, but only for domestic banks that are affiliated to a domestic family business group, as the influence of relationship-based banking declined with competitive pressure induced by foreign banks entry. Overall, the authors posit that foreign competition induces domestic banks to be more efficient and to be less dependent on relationship-based banking practices.

In the study of Korean banks, Park and Weber (2006) examined the profitability of Korean banks for the period 1992 – 2002 by testing the market structure (or structure-conduct performance) hypothesis against the efficient structure

hypothesis. In market structure hypothesis, through market power, banks in concentrated market can charge higher loan rates, pay lower deposit rates and lower collusion cost, thus generating more profits. The efficient structure hypothesis states that due to the banks efficiency, efficient banks obtain higher profitability and greater market share, which lead to a more concentrated market. The authors used data environment analysis to estimate the directional distance function and measure technical inefficiency, and the estimates of the directional distance function is used in explaining bank performance.

Park and Weber (2006) found that the major determinants of banks profitability in Korea changed between pre-and post-East Asian financial crisis periods. For the entire period (1992 – 2002), the authors found concentration has negative impact on bank profitability, contrary to the market structure hypothesis. Banks with lower operating cost per employee or branch (operating inefficiency), more assets per employee or branch (asset efficiency), less technical inefficiency, higher equity capital ratio, greater net interest margins or smaller non-performing loan share are found to be more profitable. Upon breaking the sample period into three distinct periods, market concentration, market power and efficiency are significant in explaining bank profitability during the stable period of 1992 – 1996. During the crisis period (1997-1999) and recovery period (2000 – 2002), market concentration and market power become less significant, and efficiency variable became the primary variable affecting bank profits. The results of this study indicated bank efficiency to have significant effect on bank profitability and support the efficiency structure hypothesis.

Studies on individual countries in Latin America include Barajas et al., 1999 who examines the determinants of high intermediation spreads in Colombia banking sector over two decades (1974 – 1996), covering pre and post-liberalization periods. Average spreads had not changed even after financial reforms, and the authors found non-performing loans, financial taxation (reserves requirements and forced investments) and operating cost to be the main determinants of banking spread (positive relationship). Afanasieff, Lhacer and Nakane (2002) empirical studies on 142 Brazilian banks during the 1997 – 2000 period, using a two-step approach due to Ho and Saunders (1981), suggest that macroeconomic variables are the main determinants to explain interest margins in Brazil.

Brock and Saurez (2000) study the behaviour of bank spreads in Latin America during the transition from a repressed to a more liberalized financial system, using bank-level and country data to run two-step regressions, following Ho and Saunders (1981) and others. They explore the determinants of bank spreads in Argentina, Bolivia, Chile, Colombia, Mexico, Peru and Uruguay during the mid-1990s, in a relatively new environment of financial liberalization, where new efforts to liberalise the financial systems started in late 1980s/early 1990s. In the financial liberalization environment, banks take a key role in decentralized allocation of new investments, where else, prior to liberalization, government directed resources in centralized economic decision making, including the scope and profitability of financial institutions.

The authors, Brock and Suarez (2000), considered six alternative measures as proxies for bank spreads, ranging from a narrow to a broad concept. In the broad concept, associated fees and commissions are included in interest earning assets and liabilities, while in the narrow concept, only interest on loans and deposits. The authors finally chose the concept of "interest plus commissions received/loans less interest paid plus commissions paid/deposits" as the best proxy to represent the "true" opportunity cost for depositors and borrowers, as it includes fees and commissions. As mentioned earlier, the authors used the two-step regression approach, in which bank specific variables (non-performing loans/total assets, capital, cost and liquidity ratios) are the independent variables in the first stage regressions. Macroeconomic variables such as interest rate volatility, inflation rate and GDP growth rate are used in the second-stage regression, to explain the pure spread. Their studies showed that liquidity ratio (the ratio of short-term assets to total deposits) and cost ratio (ratio of administrative and operating cost to performing loans) are important explanatory variables (positive correlation) for interest rate spreads. Higher operating cost result in higher spread, while the holding of low-yielding short-term assets contributed to higher spreads. Contrary to results in industrial countries, higher non-performing loans are associated with lower spread (except for Colombia). In general, the authors research on the Latin America countries indicated that interest rate volatility and higher inflation rate are positively correlated with pure spread, while higher GDP growth rate lower bank spreads.

Martinez and Mody (2004) used late 1990s bank-level data for Argentina, Chile, Colombia, Mexico and Peru to investigate the impact of foreign participation and concentration on bank spreads. The authors reported that concentration and administrative costs have a positive impact on banks spread, and foreign banks charge lower spreads than their domestic counterparts.

3.8 CHAPTER SUMMARY

In summary, there are many literatures on determinants of bank profits and interest rate spreads, especially in the U.S. and OECD countries. Various measures of banks performance, including a variety of independent variables are suggested in the study of banks performance, depending on the objective and nature of study, and adapting to the country of study or a panel of countries. In the next chapter, Chapter 4, we focus on the research methodology for this study.