

THE DETERMINANTS OF NET INTEREST MARGINS OF COMMERCIAL BANKS IN SRI LANKA

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Abstract

This paper investigates the impact of bank specific, industry specific and macro-economic variables on net interest margin of Sri Lankan commercial banks over the period of 1999-2011 within the dealership framework of Ho and Saunders (1981). We have found that the staff cost, capital cost, market power, inflation and T-Bill rate as positively influencing factors and management quality, statutory reserve requirement and GDP growth as negatively influencing factors on net interest margin. The study has further highlighted that there is no significant difference between the results of systematically important banks and whole sample banks with regard to the factors influencing net interest margin. Considering the prevailing high net interest margin, the findings imply that the management and policy makers need to focus on these factors to mitigate net interest margin in order for banks to act as important catalysts for higher economic growth in Sri Lanka.

Key words: Net interest margins; Commercial banks; Sri Lanka

Introduction

Banks are a key component of economic growth, with the flow of funds between lenders and borrowers being important to economic development. The effectiveness of the banking system in channeling funds from surplus to deficit sectors is often gauged by examining the spread between lending and deposit rates and by assessing the degree of operational efficiency of the banking industry. On the one hand, high margins are often associated with a low degree of efficiency and noncompetitive market conditions. On the other hand, high margins may be a reflection of an inadequate regulatory banking environment and a high degree of information asymmetry. In such circumstances, high margins are indicative of high risk premia. In this context, the spread in lending and deposit rates is a key variable to investigate, since it borders on the efficiency of banks in playing their intermediation role, and how the welfare of society as a whole is enhanced. If deposit rates are considered too low, potential depositors may move their funds into other securities, such as government treasury bills, thereby depriving the banking system of funds that it would have used to carry out its functions. On the other hand, if lending rates are considered too high, genuine borrowers may be discouraged from taking

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loans for the projects that are considered marginally profitable. In either case, the consequence is that financial markets and the economy as a whole may not work well. Therefore, understanding the factors that determine net interest margins is important to all those concerned with the well-being of the financial system.

There are many studies on elements affecting net interest margins in banking sectors. Ho and Saunders (1981) conclude that the degree of competition of the markets and the interest rate risk to which the bank is exposed, are two basic components of the interest margin. Allen (1988) argues that credit risk is important in setting interest margin. McShane and Sharpe (1985) associate the interest rate risk of the money market with the interest margin. Maudos and Guevara (2004) identify a number of determinants on interest margins and show that the degree of competition and operational costs are both important to the interest margin. Martinez Peria and Mody (2004) include both market concentration and operational cost in their econometric model to examine interest spreads for Latin American countries.

Financial institutions of Sri Lanka enjoying higher interest spread¹ that stands between 3% - 7% from 1999 to present. Though the Central Banks' lending rate has reduced gradually, expected benefits to the public have not reached them. Although the banks have made profits in short run, wider spread indicates inefficient use of funds. As per the intermediate of fund flow, public confidence may collapse and bank may face high credit risk in future due to adverse selection of borrowers. Central bank annual report (2003) identified some factors that affect to the wider spread in Sri Lankan commercial banks such as high operational cost, high non-performing loan levels, long term deposit mobilized at fixed rate, heavy reliance of interest earning activities, market structure, legal and other procedures, market stability, taxation and also Statutory Reserve Requirement (SRR). Since the identification of the explaining factors of the banking interest spread is important, the study is trying to examine the bank interest spread behavior of the commercial banks and the sensitivity of such factor to the volatility of spread over the period.

The purpose of this paper is to investigate the impact of bank specific, industry specific and macro-economic variables on net interest margin of commercial banks in Sri Lanka over the period of 1999-2011 within the dealership framework of Ho and Saunders (1981). The empirical results reveal that the staff cost, capital cost, market power, inflation and T-Bill rate as positively influencing factors on Net Interest Margin (NIM) and management quality, statutory reserve requirement and GDP growth as negatively influencing factors on NIM. The study has

¹ According to Central Bank of Sri Lanka publications, the words of Interest Rate Spread and the Net Interest Margin is inter-changeably used in Sri Lanka.

further highlighted that there is no significant difference between the results of systematically important banks and whole sample banks with regard to the factors influencing net interest margin.

The rest of this paper is structured as follows. The next section will briefly review relevant literature. The third section will detail the empirical variables and the method of study, while the fourth section discusses the results of the empirical tests. The final section concludes the paper.

Literature Review

In the literature, bank net interest margin is usually expressed as a function of internal and external determinants. The internal determinants could be termed as micro or bank-specific determinants of net interest margin. The external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation of banks. A number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study. As a result of high volatility of banks' mark up and identification of its' negative impact to the country's financial system and as well as for the whole economy, researchers have started to contribute for the literature by finding the explaining factors of interest margin in banks. One strand of literature has elaborated on the dealership model introduced by Ho and Saunders (1981) who did the test on US commercial banks and analyzed quarterly income and balance sheet data. In their model, they included four factors namely; the degree of bank management risk aversion, management structure in which the banks operate, average size of bank transactions, and variance of interest rate. With including some assumptions for their model they finally develop 'the Dynamic Intermediation or Dealership Approach' to determine the interest margin which is highly used in research. Based on this empirical approach, Saunders and Schumacher (2000) found that interest margins in six European countries and the US are affected by the degree of bank capitalization, bank market structure, and the volatility of interest rates.

Anghazo (1997) investigates the determinants of bank net interest margins for a sample of US banks for 1989-2003 period. The results for the pooled sample documents that default risk, the opportunity cost of non-interest bearing reserves, leverage and management efficiency are all positively associated with bank interest spread. For seven Latin American countries, Brock and Suarez (2000) report that bank spreads in the 1990s are influenced by liquidity and capital risk at the micro level, and by interest rate volatility, inflation and GDP growth at the macroeconomic level, although the results differ across countries.

Robinson (2002) has identified the operating cost as a key indicator of operating efficiency in

the context of Jamaica and found the positive influence on NIM. Maudos and Guevara (2004) found the positive significant impact on NIM from operating cost, risk aversion levels, interest rate risk, credit risk and size of operation. In the meantime, Anthony et al. (2008) has highlighted the decomposition need of bank specific variables as operating cost, operating scale, risk aversion level, credit risk and management quality. They have shown the capital cost as a negatively influencing factor on NIM, The positive influence from risk aversion level on NIM has evidenced empirically in the countries of Ghana, Turkey, and Tunisia. Maintaining higher equity will signal the higher risk aversion level and hence higher equity requires higher cost on equity. Ultimately the greater the risk aversion level of the individual bank will result greater NIM (Naceur, S.B., Goaid, M., 2003, Maudos et al., 2004, Kaiguo et al., 2008, and Aysen et al., 2009).

Another factor that comes under the banking operations is credit risk. Maintaining higher level of provision implies higher level of credit risk and thus need of higher margin. Maudos and de Guevara (2004) found a significant and positive relationship between net interest margin and the credit risk measured by loans to total assets ratio. According to Angbazo (1997), when the net interest margin of a bank decrease, bank's management changes the credit policy, making it riskier and thus accept more risk. In contrast, Williams (2007) who studied empirically factors determining net interest margin in licensed banks operating in Australia, found a significant and negative relationship between the net interest margin and banks' risk. He suggests that the deregulation environment contributes in accepting banks by lower interest margin and lower credit quality. Meanwhile, Martí'nez Peria and Mody (2004) provides evidence for insignificant effect of the share of nonperforming loans on spreads but significant impact from concentration measures and administrative costs.

Under industry specific factors, Industry concentration and the opportunity cost of reserve requirement are the mostly concerned variables. Market share of individual banks held will determine the ability of setting price of product, deviating from the prevailing market rate. Thus Structure – Conduct – Performance hypothesis (S-C-P) is in line with expected relation between market concentration and NIM. Khawaja et al., (2007) explained that the higher market power will raise the NIM. To measure the market power most frequently used indices were the Herfindahl Hirschman index and Lerner index. Though the Herfindahl- Hirschman index is having higher validity compared to other concentration indices, it has failed to capture the effect of product differentiation or geographical advantages which enables some bank to perform over riding the monopolistic power (Aysen et al., 2009). But the S-C- P hypothesis has a counter argument from efficient structure hypothesis, which argued on the efficiency level that rise with the market share should decrease the NIM. According to efficient structure

hypothesis the relationship should be negative between concentration and NIM but for Herfindahl- Hirschman index it is expected to be positive. Because of this counter argument, most of the literature have considered efficient structure hypothesis under the bank specific factor via scale proxy and consider S-C-P hypothesis under industry concentration. Meanwhile, Baltagi (2001) reported that market concentration has not shown significant impact on NIM. Other factor concerned under industry, is the opportunity cost of Statutory Reserve Requirement (SRR). The common ratio for all banks that implement by the apex body of the banks has cost due to the negative relationship exist between liquidity and profitability, it has considered as a burden to the bank thereby the cost is transferred to the customer.

There is no generally accepted model relating macroeconomic performance to spreads between borrowing and lending rates. However, macroeconomic volatility may raise the risk of default and therefore bank spreads. In the dealership model of banks developed by Ho and Saunders (1981), interest margins rise with the variance of interest rates as a result of the intermediation risk faced by banks. This is supported empirically by Saunders and Schumacher (2000), among many others. Moreover, if inflation shocks are not passed through to both borrowing and lending rates equally rapidly, bank spreads may be correlated with inflation rates, and indeed various studies find a positive correlation between spreads and inflation (Honohan 2003). Similarly, theory predicts that the riskiness of borrowers is likely to rise with the level of interest rates, possibly in a nonlinear way. Banks will typically want to be compensated for higher risk, which yields a positive relationship between the level of interest rates and spreads. Bernanke and Gertler (1989) indicate that an increase in economic activity may raise the net worth of borrowers and lower spreads.

Aysen et al., (2009) found that the macro-economic and the industry common factors have played dominant role in explaining the NIM. Under the analysis, inflation, growth, interbank rate are considered and there were statistically positive significant impact from inflation and interbank rate while negative impact from growth rate. Afanasieff *et al* (2002), using the Ho & Saunders (1981) two-step approach to investigate whether macro- and micro-economic factors are relevant to explaining spread behavior in Brazil, conclude that the factors most relevant to explaining such behavior are macroeconomic variables, such as the basic interest rate and output growth. In a comprehensive study, Demirgüç-Kunt and Huizinga (1999) investigate the determinants of NIM using bank-level data for 80 countries in the years 1988-1995. They reported that the bank interest margin is positively influenced by the ratio of equity to total assets, the ratio of loans to total assets, a foreign ownership, bank size, the ratio of overhead costs to total assets, inflation rate, and the short-term market interest rate. The ratio of non-interest earning assets to total assets, on the other hand, is negatively related to

the bank interest margin. Output growth, by contrast, does not seem to have any impact on bank spread.

Data and Methodology

In order to investigate the determinants of interest rate margin, the data were collected for thirteen years from 1999 to 2011. The rationale of selecting this time period is the regular presence of the nine domestic Licensed Commercial Banks. Primary source of collecting data was annual reports of the corresponding banks and some of publications of the Central Bank of Sri Lanka (CBSL). For the study, the sample of nine banks was selected from the population of 22 Licensed Commercial Banks (LCB). Though the LCB comprises with both domestic and foreign banks, there are number of motives to select the nine domestic LCBs. i. the strategic differences of the banking operations, as an example the National Development Bank functioned as a Licensed Specialized Bank (LSB) till 2004 and 2005 onwards it is operating as LCB. ii. inconsistency presence of the operations of foreign banks throughout the period of 1999 to 2011, and iii. the accounting reporting method of the foreign banks is different, compared with domestic LCBs due to multi-currency transactions.

The method that used to study the determinants of interest rate spread is an expanded model of Ho and Saunders' dealership framework (1981). Although there are number of ways to calculate the NIM, we have defined as the difference between interest income from loan and advances as a fraction of the total loan and advances and the interest paid out on deposit as a percentage of total deposits. Since this study focus mainly on spread between lending and deposit rates (traditional function), the average prices for loan and advances and average cost on deposit liabilities have been considered. According to the Brock and Rojas- Suaraz (2000), this is a narrow definition for spread. The use of narrow definition to calculate the NIM has mitigated the conflicts of coping product portfolio under multiple rates, because, the banks are offering their products under different prices. In addition to this, it had removed the product differentiation impact on spread that results from the deviation of the banks from their traditional functions and thus to develop interest income portfolio.

The extended Dealership Model of Ho and Saunders can depict by followings;

$$NIM_{it} = f(\alpha, A, B, C, \varepsilon_i)$$

Where, NIM is the net interest margin of bank i at time t , is a function of $[\alpha]$ the intercept that independent from any factor (pure spread); $[A]$ bank specific variable of bank i at time t ; $[B]$ industry specific measures at time t ; $[C]$ macroeconomic measures at time t , and $[\varepsilon_i]$ is random error term.

Bank Specific Variables

The factors results from the individual banks have been considered under the three main measurements. Under these main measurements, many factors are considered for identifying the determinants of NIM. Operating Cost- Since the cost can decompose into several categories, the operating cost is considered under Staff, Capital, Administration and Tax. Personnel cost on employees and the provision of staff retirement have considered as staff cost and it presented as a fraction of total assets in order to investigate the extent of total asset investment on the human resources. Since the high level of staff cost require a high level of profit, positive relationship is expected with the NIM. Capital cost includes the expenses on depreciation and occupancy cost. Sum of these capital type expenses that incurred against the capital assets of the institutions has shown as a fraction of net fixed asset. The high level of capital expenditure signals the high level of operation efficiency as a result of technological advancement. Thus the higher efficiency level will reduce the cost per unit and hence, lower the NIM. Therefore, it is expected the negative relationship.

Administration cost includes other overhead cost and fee and commission expenses that the bank should bear for smooth functioning of the institutions. The sum of these two expenditures present as a ratio of total assets. The increasing trend of the administration cost will also seek the wider margin to cover it. Thus the relationship expected between administration cost and the NIM is also positive. Tax liability on financial instruments and the operations of the financial institution shows significant portion from the profit before tax. Bearing higher tax liability on the traditional operation of banks will result the wider margin.

Operation Efficiency is an element which signals by the size of NIM. Thus, the extent of efficiency of the operation activities can be treated as influential factors to the NIM. Factors like non-performing loan levels and management efficiency have been considered for measuring the operation efficiency. Non- performing loans (NPL) remaining in the banks has been identified as an explaining factor to NIM by the CBSL. As higher NPL level as a portion of total assets require higher provisions, the positive relationship is expected. Management quality measures the extent of expense coverage by the income. Since the high quality of management narrows the NIM, the negative relationship is expected with NIM. Scale of the Operations used to identify the influence from size factor. Authors have considered three factors namely; total assets, total deposits and total loans. However, for this analysis Total Loans has been considered as only factor to the scale variable to avoid the multi-collinearity issue. The expansion of scale will reduce the cost per unit. The benefit of scale will lower the NIM and thus it is expected the negative relationship.

Industry Specific Variables

Under the industry specific variables, it has been considered two factors namely; market share of the banks and the SRR. Market Share signals the monopoly power of a bank which determines the ability to set a higher margin. Thus the market concentration has been calculated by using the ratio of individual banks' deposit to the total deposit of the LCBs. It is expected that the higher market power will result higher NIM by showing the positive relationship based on the S-C-P hypothesis. Industry-structure factors that affect bank NIM are not the direct result of managerial decisions. These are industry concentration and the ownership status of banks. The Structure-Conduct-Performance hypothesis figures prominently among theories that relate market power to bank NIM. SRR make banks oblige to comply with the requirement in order to maintain sufficient liquidity position. It has a cost of holding, due to the non-investment on the productive projects. Thus, SRR ratio established by CBSL has considered as a determinants of NIM.

Macro-economic Variables

Under macro-economic variables Inflation rate, interest rate on Treasury bill, and GDP growth rate are considered. Inflation rate volatility reduces the real value of nominal rates under the macroeconomic factors. Thus inflation has been identified as a positively influencing factor to NIM since the increase of inflation induces to increase the NIM. Interest rate on Treasury bill treats as a substitution of banks' product as per the default free security prevailing in the money market. The volatility of interest payment on one year maturity holding T-bill was considered as a prominent factor in explaining NIM and hence the relation would be positive due to the competition exist between treasury rates and NIM. GDP growth rate have identified as complementary to the development of financial system. It is expected that the high growth level of a country will emphasis the high level of financial system development. Thus, the negative relation will exist due to the lowering of cost of operation and hence narrow the NIM as a result of the growth of the GDP.

Based on the above discussions we have developed the following econometric model equation, Where, NIM is a function of pure spread; STAFF is staff cost; CAP is capital cost; ADM is administration cost; TX is tax liability of bank; NPL is non-performing loan level of bank; MGT is management quality of the bank; TL is total loan of bank; MKT is market share of the bank; SRR is Statutory Reserve Requirement rate of the CBSL; INF is inflation rate; TB is treasury bill rate; and GDP_G is the GDP growth level.

$$NIM = \alpha + c_1 STAFF_{it} - c_2 CAP_{it} + c_3 ADM_{it} + c_4 TX_{it} + c_5 NPL_{it} - c_6 MGT_{it} - c_7 TL_{it} + c_8 MKT_{it} + c_9 SRR_{it} + c_{10} INF_{it} + c_{11} TB_{it} - c_{12} GDP_G_{it}$$

4. Empirical Results and Discussion

This section provides empirical evidence on the determinants of bank interest margins in the Sri Lankan banking industry. The basic model of the study contains the factors from bank specific, industry specific and the macro-economic factors. The study performs advanced panel data techniques, thereby ensuring avoidance of estimation bias and specification problems. Panel data estimation was done running the e-views version 6. The data series were tested for stationary and it is at the stationary level. A Hausman test was employed to determine if a fixed effect or random effects estimator was appropriate. The results reject the null hypothesis that random effects exist in this case.

Table 01: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
Net Interest Margin	0.077	0.077	0.215	(0.010)	0.027
Staff cost	0.018	0.017	0.032	0.002	0.006
Capital cost	0.654	0.565	2.510	(0.420)	0.368
Administration cost	0.011	0.011	0.026	0.001	0.005
Tax cost	0.258	0.276	0.605	(0.176)	0.171
Non-performing loans	0.132	0.114	0.448	0.034	0.089
Management efficiency	1.390	1.363	3.352	0.297	0.418
Total loan	0.056	0.048	0.169	0.001	0.047
Market share	0.095	0.078	0.292	0.002	0.084
Statutory Reserve Rate	0.099	0.100	0.110	0.074	0.010
Inflation	0.108	0.096	0.226	0.047	0.055
Treasury bill rate	0.128	0.127	0.199	0.072	0.044
GDP growth	0.045	0.054	0.077	(0.015)	0.023

Number of observation 118

A broad description of the characteristics of the variables used in the study is given in Table 1, which reports their statistical means and standard deviation. The mean level of the NIM has recorded as 7.7% while it has lied between -1% and 21% throughout the period. Comparing with world trend of spread, the spread of Sri Lanka has sizeable increasing trend from the year 2000. Since lower spread is considered as a factor to indicate the financial stability of a country, Sri Lanka is far behind in achieving financial stability due to wider spread.

Table 2 shows the estimated results for the regression equation for all sample banks. The specification of label one shows the regression estimation of all variables considered for this

study and the label two shows only the coefficients of the significant variables. Bank specific variables are decomposed as operating cost, operation efficiency and the operation scale. The cost of the operation has been calculated via staff cost, capital cost, administration cost and tax liability. The results show that a percentage increase in the capital cost variable induces 0.024 percent increase in interest margins for bank i at time t with a 1% significance level. This implies that, for all banks, interest margin has a strong positive response to the capital cost. This confirms theoretical expectations about the sign and significance that an increase in the capital cost implies a higher bank interest margin. Meanwhile, the staff cost is marginally influencing on NIM in positive way. The expected positive relation between staff cost and NIM has empirically proved by the 0.91 percent sensitivity of NIM to the 1% variation of staff cost, suggesting that the staff cost, remarkably, is transferred to the interest margin.

To measure the operational efficiency of the LCB, non-performing loan levels and the management quality are considered. The variable management quality has a negative sign, which shows that the efficiency of management is quite important in determining interest margins, and that poor management lowers the interest margin. Thus, it can be argued that the operational efficiency is lacking within the LCB of Sri Lanka. The non-performing loan levels is not a significant determinant for the entire sample banks. This suggests that credit risk exposures and interest margins are not related in Sri Lankan commercial banks. The loan amount, as the variable to the scale of operation has expected a negative coefficient on the basis of Efficient Structure Hypothesis which emphasize economic of scale. Thus the empirical data confirms the anticipated negative impact on NIM which statistically significant at 10% level. Based on the findings, 1% loan size increase will result the 0.476% decrease in NIM which explains the reduction of average cost per customer due to the expansion of operation.

Factors influence on NIM from the industry common factors is measured through market share and the Statutory Requirement Rate (SRR). The indication of market share has counter argument from the Structure- Conduct- Performance (S-C-P) hypothesis and Efficient Structure Hypothesis. Empirical results have identified the market share as highly positively influencing factor on NIM. According to the S-C-P hypothesis, the monopoly power will reflect by higher market share. The positive relationship of the spread with market share implies that higher market share gets translated into higher market power thereby enabling the bank to raise the spread to the detriment of its customers. Our results show the positive significant relationship between the market share and NIM.

Table 2 : Regression Results of Sample Banks

Variables	Coefficient (1)	t-statistic	Coefficient (2)	t-statistic
Constant	0.078	2.130	0.076	2.375
Staff cost	1.124	1.667*	0.917	1.798 *
Capital cost	0.026	3.929***	0.024	3.845***
Administration cost	-0.069	-0.120		
Tax cost	-0.003	-0.214		
Non- performing loans	-0.051	-1.466		
Management efficiency	-0.012	-1.993**	-0.012	-2.078 ***
Total loan	-0.392	-1.466	-0.476	-1.952 *
Market share	0.709	4.494***	0.716	4.736***
Statutory Reserve Rate	-1.005	-4.029***	-1.019	-5.154***
Inflation	0.057	1.933**	00.67	2.871***
Treasury bill rate	0.207	3.232***	0.167	3.707***
GDP growth	-0.272	-2.715***	-0.204	-2.375**
R2		0.639		0.625
Adjusted R2		0.546		0.552

*significant at 0.01, ** significant at 0.05, and *** significant at 0.10

Table 3 presents the regression results for Systematically Important Banks (SIB). For SIB, the staff cost is a highly influencing factor while capital cost influence marginally. The coefficients for staff and capital cost are 1.12 and 0.018 respectively. The administration cost and the tax liability are not showing the strong influence on NIM for both whole sample and SIB. Meanwhile, for the SIB, the market share is marginally significant with 0.15% coefficient. This implies that a 1 percent increase in market share enables the net interest margin to increase by 0.15 percent.

Table 3: SIB Regression Results

Variables	Coefficient (1)	t-statistic	Coefficient (2)	t-statistic
Constant	0.118	3.569	0.134	4.574
Staff cost	1.097	1.858*	1.128	1.990**
Capital cost	0.014	1.351	0.018	1.797*
Administration cost	-0.458	-0.764		
Tax cost	-0.010	-0.806		
Non- performing loans	0.059	1.788*	0.046	1.891*
Management efficiency	0.010	2.307**	0.008	1.943*
Total loan	-0.392	-1.466*	-0.094	-0.646
Market share	0.210	1.988**	0.150	1.943*
Statutory Reserve Rate	-0.496	-2.389**	-0.470	-3.422***
Inflation	0.034	0.1979**	0.052	2.231**
Treasury bill rate	0.047	1.079		
GDP growth	-0.188	-3.127***	-0.217	-3.537***
R2		0.754		0.701
Adjusted R2		0.667		0.626

*significant at 0.01, ** significant at 0.05, and *** significant at 0.10

The macro economic variables of inflation, Treasury bill rate and the GDP growth rate are considered as variables. Treasury bill rate as per the substitute instruments for the customers who has excess fund can identify as a highly positive significant factor for the all banks. The 1% increase of Treasury bill rate will increase the NIM by 0.167%. But, for the SIB, Treasury bill rate is not statistically significant. The only insignificant macroeconomic policy variable, the Treasury bill rate, is generally viewed as the benchmark interest rate in the economy, and a lowering of this rate is expected to have a signaling effect, precipitating a lowering of interest rates by other stakeholders. The insignificance of this variable for SIB suggests that this signaling effect has less of an impact on interest rate spreads than that perceived in much of the literature. This is especially so if there are other contradictory signals, such as high and/or volatile inflation rates. GDP Growth rate, as the variable that signs the financial system stability as well as the credit worthiness of the customer is shown a negative impact as expected and the coefficient also statistically significant. The sensitivity of GDP Growth on NIM within the all banks and for SIB is -0.204 and -0.217 respectively. The value of coefficient indicates that the

Systematically Important Banks are having more capability to narrow the margin in line with the growth of the country. Meanwhile, the inflation variable is also positively associated with interest spreads. The coefficient of this variable is statistically significant at the 5 percent level for both all sample and SIB, suggesting that commercial banks widen the spread between lending and deposit rates in periods of frequent increases in inflation.

The empirical results have identified the significant positive influence on NIM from staff cost and capital cost as components of operating cost. The results have supported by the CBSL predictions in 2003 as determinants of NIM. The CBSL has predicted the positive impact of tax cost on the NIM of individual banks in 2003, but our empirical results indicate as non significant factor in explaining the NIM. In case of the scale of operations, the countries like Jamaica, Mainland China, Turkey, Tunisia and some developing countries have used loan variable to measure the size. They have found negative significant influence on NIM which are consistent with our findings. But according to Robinson (2002), there should be a maximum point of scale which lower the NIM and over going that limit will wider the NIM. Meanwhile the findings of Bawumia et al.(2005) and Anthony et al.(2008) in the Ghanian context, concluded that the size variable has the highest positive influence on NIM.

Industry concentration that measured through the market share shows significant positive influence on NIM stating the higher power to set the NIM at wider level in Sri Lanka, as expressed by CBSL. Most of the literature have identified the need of lower the market concentration that results higher competition thereby narrow the NIM. Highlighting the significant of GDP Growth in the context of Brazil, Turkey, Pakistan and Developing countries, Sri Lanka also has found the significant negative impact on NIM. But according to Naceur et al.(2003), for Tunisia the GDP Growth is positively influencing on NIM. The rate on T- Bill have identified as a benchmark to set the deposit rate. The positive significant influence has statistically proved the CBSL prediction.

Concluding Remarks

This study have investigated the determinants of interest rate margin for the period from 1999 to 2011 using the selected variables from bank, industry and macro-economic perspective within the broad framework of Ho and Saunders (1981). Since systematically important banks play major role in the banking sector, we also provide a systematic comparative analysis of the determinants of interest margins of systematically important banks versus all banks operating in Sri Lanka. This enables us to assess to what extent the determinants of interest margins in the SIB are becoming similar to those found in all banks.

This study have identified that the staff costs, market power, inflation and T-Bill rate as positively

influencing factors and management quality, statutory reserve requirement and GDP growth as negatively influencing factors on NIM. Hence the reduction of staff cost, T-Bill rate and market concentration will narrow the NIM. The negative impact from the scale of operations, GDP Growth and SRR on NIM will facilitate to the CBSL to make their policies in effective way. Thus the increase of size of the banking operations will narrow the NIM. On the other hand the greater extent of GDP growth also makes NIM narrow and hence the contribution from all the sectors of the country will be a pre-requisite.

When we compare the results of entire sample banks with SIB, there is no much difference in the results except the variables of non-performing loans and treasury bill rate. It is found that the non-performing-loan level is significant only for SIB while T- Bill rate is significant for all sample banks. In addition to that, the significant level is different from sample to SIB with respective to the influencing factors. As an example, capital cost is highly significant for sample while staff cost is marginally significant. But for SIB, it shows reciprocals of significance levels as highly impact from staff while marginal impact from capital.

Our results suggest a number of policy implications in the transition towards modern banking standards. It has found the staff cost as highly influencing factor to wider the NIM. Paying attention on this regard, the individual banking institutions can develop the policies to improve the productivity of the human resource and hence to reduce the cost per employee. On the other hand, since the benefits from the advanced technology is lacking within the industry, it is recommended to develop the corrective policies in order to attain the technology advancements. The dominant effect from non-performing-loan on SIB, is pointed out the necessity of paying more attention on the efficiency level of the operations of SIB, since SIB are bearing higher market share, impairment of public confidence regarding the sustainability of SIB will adversely affect on whole banking system. Therefore, promoting bank competition and efficiency, providing a macroeconomic environment that is conducive to lower equilibrium interest rates, and reducing reserve requirements are likely to be important measures for reducing net interest margin in Sri Lanka.

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The Determinants of Net Interest Margins of Commercial Banks in Sri Lanka

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