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Abstract- A major assumption in much of the bank profitability literature is that banks are profit maximizers. It is in fact, one of the assumptions that are shared by all models reviewed in the area of bank profitability studies. To be sure, standard theory tells us that banks' shareholders are aspiring maximum return (profits) for their investments and it is thereby managers as agents of shareholders' pursue to maximize profits. Hence, banks' primary objective is to maximize shareholders return on investment by maximizing revenues and minimizing costs. The focus of the current study is emphasized the importance of achieving a healthy Net Interest Margin (NIM), which is the main lifeline or core in the banking business. Hence, this is an empirical study based on a time series analysis of actual data published during the latest 12 years on key variables relating to NIM and Profit after Tax (PAT). The authors have attempted to describe the relationship among important variables covering the subject and finally, the latest trends between NIM and PAT. Accordingly, the objective of this study was based on verifying the general opinion on whether the NIM of the Sri Lankan Banking industry is on an undesired direction.

Keywords: sri lankan banking industry, NIM (net interest margin), AWDR (average weighted deposit rate), AWLR (average weighted lending rate), profit after tax (PAT).

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The Influence of Net Interest Margin (NIM) on Profitability of Sri Lankan Banking Industry

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Abstract- A major assumption in much of the bank profitability literature is that banks are profit maximizers. It is in fact, one of the assumptions that are shared by all models reviewed in the area of bank profitability studies. To be sure, standard theory tells us that banks' shareholders are aspiring maximum return (profits) for their investments and it is thereby managers as agents of shareholders' pursue to maximize profits. Hence, banks' primary objective is to maximize shareholders return on investment by maximizing revenues and minimizing costs. The focus of the current study is emphasized the importance of achieving a healthy Net Interest Margin (NIM), which is the main lifeline or core in the banking business. Hence, this is an empirical study based on a time series analysis of actual data published during the latest 12 years on key variables relating to NIM and Profit after Tax (PAT). The authors have attempted to describe the relationship among important variables covering the subject and finally, the latest trends between NIM and PAT. Accordingly, the objective of this study was based on verifying the general opinion on whether the NIM of the Sri Lankan Banking industry is on an undesired direction.

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I. Introduction

The banking sector plays a vital role in GDP growth in any country and Sri Lanka is no exception. Banks are the financial intermediaries who pay interest on the deposits of the customers and lend out excess funds as loans and other forms of advances to other institutions and entrepreneurs at a higher rate. Net interest margin (NIM) on lending is the premium (profit) received by the banks for bearing the risk of recovery. NIM is a measure of the difference between the interest amount the bank gets from the users of bank credit and the interest amount deposited to customers. The net interest margin focuses on the conventional borrowing and lending operations of a bank which, is generally normalized by adjusting for interest-bearing assets rather than total bank assets. NIMs sometimes sharply differ in the global context; Belarus, Burundi, Ghana, and Moldova are notable for their margins of over 10%, whereas countries like Switzerland and Netherlands have low margins of less than 2%.

This research problem originates on common opinion among stakeholders in the industry that bank profitability is under tremendous pressure due to decreasing NIM. Hence, a need for a scholarly level study encouraged the authors to undertake an empirical research on the subject in the Sri Lankan context.

Under the proposed conceptual model developed by the authors, two factors were selected as main indicators of profitability, namely Net Interest Margin (NIM) and Profit after Taxation (PAT). NIM is a specific profit indicator in the banking industry, which comprises composite averages of banks' pricing and operational efficiency. This study analyzes the impact of NIM on profitability, identified as PAT (Profit after Tax) in the banking industry of Sri Lanka.

II. Literature Review

Many factors affect profitability in the banking sector. Generally these factors are categorized as bank-specific factors; such as capital ratio, bank activity diversification, Credit Risk, Bank Size, Liquidity, Overhead expense Management, Leverage and macroeconomic factors such as inflation, GDP, Ownership, Market Capitalization, Treasury Bill Rates etc. (Flamini et al., 2009; Athanasoglou, et al., 2006).

Based on literature, bank size; ownership status, bank risk, capital level, and expense management are the bank-specific determinants of bank profitability. The banks have the extra ability in a concentrated market so that they can charge high interest margins for the borrowers and pay less margin of return (in the form interest) to their depositors and this gap of difference between the lending and borrowing rate is the profit of banks (Weber, 2005). Studies on the variables associated with bank profitability are crucial for institutions directors, financiers and, government as they can evaluate the bank's effectiveness and revise the government's plans, depositors' choices and bank mangers' strategies to achieve their planned goals (E. Mamatzakis & Remoundos, 2003). Molyneux and Thornton (1992) investigated the indicators of the banks' profitability in 18 countries, from 1986-1989.

As stated by Hoggarth, Milne, & Wood (1998), NIM is an investigation on the income made through interest mark-up. Angbzo (1997), in the study of the banks in United States, from 1989-2003, concluded that management effectiveness, credit risk and leverage had positive associations with net interest margin. Further, a study on the banks in the United States the same authors identified that net interest margin had a direct association with capital and inverse association with

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liquidity risk, mainly credit risk. Naceur (2003), in his study of the determinants of the Tunisian banking industry's profitability, based on ten banks from 1980-2000, identified, a link between the high net interest margin and profitability with high quantity of capital and cost. In 2001, Abreu and Mendes investigated the relationship between the bank net interest margin and profitability in the European banking sector and found that well-capitalized commercial banks were more efficient and hence enjoyed better profitability.

Cassis and Brautaset (2003) stated profitability, size , and survivorship as the three key measures of a firm's performance. Smirlock (1985) and Graddy and Kyle (1979) found that interest rate spreads were narrower in concentrated banking systems, while Whitehead (1978) and Keeley and Zimmerman (1985) reported mixed results. Hence, NIM leads as a direct measure of performance, which may result in the market power of dominating firms. It also reflects on the residual of interest income, as a result of the efficient decision making of the management. As per Yusgiantoro (2018), higher profitability in Asian Banking than the rest of the world might indicate that Asian banking is likely to undertake higher risk- taking, although it does not necessarily lead to financial crises.

In the Sri Lankan banking sector, there is no consensus in setting NIMs, operating costs, credit risk, non-interest income, and capital adequacy requirements. Hence market competition, regulatory controls on banks, risk arising from the volatility of market prices, and macroeconomic variables have significant impacts on the determination of NIMs. Considering the challenges, a theoretical model was streamlined based on the assumption that only Average Weighted Deposit Rate (AWDR) and Average Weighted Lending Rate (AWLR) will have impacts on NIM and hence determining Profit after Tax (PAT).

III. Research Framework

The research framework was conceptualized considering;

$$NIM = \frac{\text{Interest Earnings} - \text{Interest Expenses}}{\text{Interest earning Assets}} \times 100\% \quad \text{and}$$

PAT = Profit before Tax – Income Tax

Accordingly, Research framework was depicted in the Figure 1 as follows;

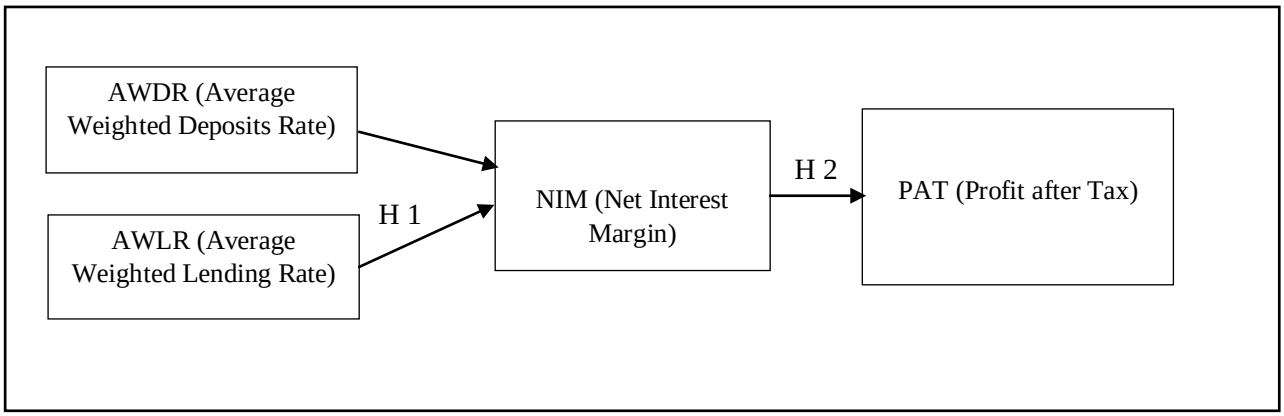

Figure 1: Research Framework

The main objective of the study was to determine the relationship between AWDR and AWLR on NIM and the impact of NIM on PAT.

According to the variables depicted in Figure 1, the Following 02 hypothesis were formulated;

H1: The correlationship between AWDR and AWLR is very high

H2: The impact of NIM to PAT is very high

Calculation of AWDR and AWLR were based on the following formulas:

AWDR of Deposits = W 1 D 1 + W2 D2 + ……+ W n D n

W = relative weight of the category of Deposit (e.g. Savings Deposits) %

D = value of the category of Deposits (e.g. Savings Deposits)

AWLR of Loans = W 1 L 1 + W2 L2 + ……+ W n L n

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W = relative weight of the category of Loan (e.g. Housing loans) %

L = value of the category of Loans (e.g. Housing loans)

IV. Data used in this Study

Actual data released by the Central Bank of Sri Lanka during the latest 12 years were considered for the study. As all data relevant to AWDR, AWLR, NIM, and PAT covering the entire Banking Industry of Sri Lanka were taken in to consideration (Table 1).

Table 1: Data for AWDR, AWLR, PAT, and NIM from 2006 to 2017

Variables	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AWDR %	5.31	6.24	7.60	10.31	11.63	8.01	6.23	7.24	10.10	9.37	6.20	6.20
AWLR %	14.82	15.14	17.74	20.00	22.17	14.12	12.27	11.75	11.20	10.96	10.02	10.12
NIM %	4.3	4.1	4.4	4.4	4.4	4.6	4.6	4.2	4.1	3.5	3.5	3.2
PAT (in Rs Mn)	15,230	19,972	22,797	25,353	27,756	27,268	59,191	65,846	82,666	74,595	87,970	85,523

Source: Published Data/Annual Reports of Central Bank of Sri Lanka (www.cbsl.lk)

V. Results

A descriptive summary of the variables from 2006 to 2017 is provided in Table 2. The correlations between the variables are also presented in this table. The values were accepted as symmetrical.

Table 2: Descriptive Summary of the variables in this study

Variable	Mean ± SD	Correlations			
		AWDR	AWLR	NIM	PAT
Av. W. Deposits% (AWDR)	7.87±2.03	1	0.529	0.534	0.849
Av. W. Lending% (AWLR)	14.19±3.98	0.529	1	0.602	-0.793
Net Interest Margin% (NIM)	4.11±0.46	0.534	0.602*	1	-0.707
Profit after Tax (PAT)	49514±28885	0.849	-0.793	-0.707*	1

**Significant at 0.05 level*

As shown in Table 2, there is a sizable and positive association (r=0.529) between AWDR and AWLR. The higher is the AWDR, the higher is the AWLR. There is a significant and positive association (r=0.534) between AWDR and NIM. The higher is the AWDR, the higher is the NIM. Similarly, there is a significant and positive association (r = 0.602) between AWLR and NIM. The higher is the AWLR, the higher is the NIM. There is a significant and negative association (r = -0.707) between NIM and PAT. The higher is the NIM, the lower is the PAT.

In reality, when lending rates are on the increase, the demand for customer borrowing naturally comes down, and as result, profitability also reduces. This is evidenced not only in banking industry but also in the other financial markets. Under such scenarios, banks are compelled not to further increase lending rates in order to mitigate loan defaults.

VI. Conclusion

The results of this study showed a significant association between AWDR and AWLR. When AWDR increases; the AWLR also increases. When AWLR increases, NIM also increases. An increase in NIM reduces PAT. The higher is the AWLR, the higher is the NIM. The higher is the NIM, the lower is the PAT. Even though the sample size in this study is small, there is some evidence that increases in AWDR and AWLR increase NIM, and which in turn increases PAT.

Based on the results, Sri Lankan banks can safeguard the NIM as the single most influential KPI for the PAT. However, exclusive reliance on same for future growth and survival seems inconclusive and vulnerable.

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