EFFECT OF INTER-INDUSTRY COMPETITION AND FINANCIAL FREEDOM ON COMPETITIVENESS OF COMMERCIAL BANKING SECTOR

Champika LIYANAGAMAGE, PhD*

Abstract

This paper provides some interesting insight into the impact of financial freedom and inter-industry competition on commercial banking sector competition in Sri Lanka. The study used a broader set of panel data and employed Panzar-Rosse approach to estimate the degree of bank competition. The size of the country's stock market capitalization and non- banking financial sector performance were used to measure inter- industry competition, whereas financial freedom index was used to measure the freedom of financial institution to contest in the market. The sample covered the whole commercial banking sector which includes 25 banks over the period from 1996 to 2018. Surprisingly, the results did not provide evidence for direct impact of financial freedom on bank competition in the country. However, study found a strong evidence for positive implications of non-banking sector performance on bank competition. The stock market performance is found to be negatively associating with bank competition. Hence formulating policies enabling competitiveness within financial market could be suggestive as it would certainly cause positive implications on the banking sector competitiveness.

Keywords: bank competition, contestability, financial freedom, inter-industry competition, H- statistics

JEL Classification: C51; G21; G28; E32

1. Introduction

The financial system carries out the vital financial intermediation function of borrowing from surplus units and lending to

* *Senior Lecturer, Faculty of Management Studies, Open University of Sri Lanka.*

deficit units (Central Bank of Sri Lanka, 2020). The financial system of a country consists of components which can differ from one economy to another. There are three main components of a financial system: 1) Financial intermediaries, 2) Financial Markets, and 3) Regulators. A financial system is recognized as repressed when the financial system is subject to controls and limits are deliberately imposed on financial prices (mainly interest rates) (Shaw, 1973). The necessity of financial liberalization for economic growth in developing countries was clearly recognized in the economic theories presented by McKinnon (1973) and Shaw (1973). Since then, most underdeveloped countries in South America, Africa and Asia which were regarded as repressed economies in terms of financial policies, undertook financial reforms to liberalize their economies. Financial sector reforms are important not only to establish a modern financial system which can act as the "brain of the economy" but also to allocate the economy's savings in the most productive way among different potential investments. These financial reforms then enable economic growth and thereafter welfare, with improved competition.

Sri Lanka has not been an exception in this liberalization process and underwent a series of financial sector reforms along with the economic liberalization policies introduced in 1977. At present, licensed banking sector dominates the banking sector in Sri Lanka, which comprises Licensed Commercial Banks (LCB) and Licensed Specialized Banks (LSB). As far as the asset base and the magnitude of services provided are concerned, LCBs are the single most imperative category of financial institutions within the Sri Lankan banking sector. According to the statistics as at end December 2018, the LCBs dominated the financial system with a market share of 54.9 per cent of the entire financial system's assets. Therefore, the soundness of the LCBs determines the health of the financial system of the country. Hence, the banking sector competition is crucial for the financial sector development of Sri Lanka.

The performance of the industries in financial sector other than commercial banks would impose a considerable impact on the competitiveness in the commercial banking sector. As New Empirical Industrial Organization literature posits, factors other than market structure may affect competitive behaviour. Hence, the emerging contestability literature in banking suggests that the competition coming from the industries in the financial sector other than commercial banks and the freedom to contest as a financial institution in the

economy will accelerate banking sector competitiveness (Claessens & Laeven, 2003).

Theoretically, state ownership of financial institutions such as banks, insurers and capital markets and state control over them reduce competition lowering the availability of services. Therefore, minimum government interference and regulations on financial institutions said to be creating a conducive environment for financial institutions to provide efficient service and banks to freely allocate and extend credit and accept deposits. However, a common obstacle can be observed in many developing countries. That is, banks in the developing countries are competing in an environment where the financial infrastructure or the prerequisites for such competition is lacking. Consequently, the combined net result of recent liberalization efforts on financial market development in emerging economies including Sri Lanka, is uncertain and insufficiently revealed in the existing literature.

Hence, the main objective of present study is to investigate the nexus among financial freedom, inter-industry competition and bank competition in the context of Sri Lanka. Analyzing the issue of bank competition is of vital importance for Sri Lanka as it can help understanding the welfare effect of changes happen in the banking sector. Understanding anticompetitive behavior in the financial sector would be vital since the banking sector can enforce severe costs on an economy. As stated in Fernandez de Guevara and Maudos (2007), from the regulator's point of view, knowledge and understanding of the degree of competition may be limited. But finding the main causes of market power complements this limitation and help to carry out the reforms which are necessary to reduce the social costs connected with the existence of monopoly market power. Thus, the present study is justifiable and significant.

2. Literature Review

Financial liberalization theory that emerged in 1970's stresses the importance of greater liberalization in the banking industry in order to achieve economic growth. The theoretical underpinning of greater liberalization in the banking industry is the McKinnon-Shaw hypothesis. Many in this literature, McKinnon (1973), Shaw (1973), advocate the desirability of financial liberalization measures to free banks from financial repression. In many developing countries, the financial systems were highly regulated up to about the 1980s. The government

regulated the interest rates and imposed credit ceilings, owned banks and financial institutions and framed regulations with a view to making it easy for the government to acquire the financial resources at a cheap rate (Shrestha & Chowdhury, 2007). The financial sectors of those countries could not therefore mobilize the necessary funds due to the interest rate distortions and tight regulations. Thus, the desired level of economic growth would not be achieved due to low investment associated with higher interest rates. McKinnon and Shaw termed this state of affair as "financial repression".

Main argument of McKinnon-Shaw hypothesis was that suppressive regulations in the financial markets lead to financial repression and distort incentives of savers and investors in an economy. With such artificial ceilings on interest rates, efficient allocation of resources would be discouraged due to the lower savings and capital accumulation. Thus, MacKinnon (1973) pointed out other two major effects of financial repression approach. First is dualism, in which firms that have access to subsidized funding will tend to choose relatively capital-intensive technologies, whereas those not favoured by policy will only be able to implement high-yield projects with short maturity. The second is "credit rationing" effect, which results from excessive government intervention in money and credit markets in developing countries. Since the interest rates are not decided by demand and supply which can screen the applicants, other non-market forms of clearing must take their place. These consist of "queuing" arrangements to allocate the available credit in a variety of forms such as auctions, quantitative restrictions as well as different types of "bidding" systems. This ultimately affects not only the quantity of credit but also the quality of borrowers (Gemech & Struthers, 2003).

A liberalized banking sector on the other hand will see banks competing with one another for deposits, putting upward pressure on the deposit rate of interest and thus increasing the quantity of deposits mobilized. By allowing the market to allocate credit, it is also claimed that loans will then be directed toward those investments that offer the highest risk-adjusted rates of return. McKinnon (1973) and Shaw (1973) further assert that the liberalized banking sector also helps channel the funds to the most productive enterprises and facilitate technological innovation and development. Therefore, Mackinnon-Shaw paradigm strongly advocated the liberalization of financial sector to improve the competitiveness in the banking sector to support the growth process of the economy.

With these arguments, MacKinnon (1973) and Shaw (1973) paradigm too supports the predictions of industrial organization theory. Generally, the models based on industrial organization predict positive implications of bank competition. However, as far as developing countries are concerned McKinnon-Shaw paradigm is far from reality. First, credit rationing can be affected by many reasons such as asymmetric information and other market imperfections. Hence financial repression is only one cause of credit rationing. Second, though financial liberalization works in the context of developed countries, it is not very easy to fully liberalize the financial system in developing countries. The reason is that financial repression may be the only option for financing government when there is no government bond market or efficient tax system. Third, unlike in developed countries, the relation between interest rate, saving and investment is quite complex in developing countries. Therefore, the expected outcome of financial liberalization and competition is questionable.

The traditional approach on competition claims that higher the number of firms in the market higher will be the price competition and vice versa (this approach is also called 'structural approach'). This definition comes from a classic Industrial Organization argument, called the Structure-Conduct-Performance paradigm (SCP), which assumes that there is a causal relationship running from the structure of the market to pricing behaviour, profits, and the degree of market power of the firm. In SCP paradigm competition or the market structure is reflected in concentration ratios. The non-structural approaches posit that factors other than market structure (concentration) may affect competitive behaviour. This approach has been developed in the context of the New Empirical Industrial Organisation (NEIO) literature. The contradictory results of the concentration approach together with the results of the emerging contestability literature, propose that the banks' competitive behaviour is not necessarily related to the number of banks in a market or to their concentration but related to other factors such as entry-exit barriers and the general contestability of the market (Baumol et al. 1982; Rosse and Panzar, 1977; Panzar and Rosse, 1987; Northcott, 2004). The most remarkable contribution of non-structural approaches is that they assume concentrated markets are not necessarily less competitive. This is because the ability to contest in the market determined by the competitive climate in the industry and not necessarily on the number of banks in the market (Casu & Girardone, 2006). Further, contradictory to the common criticism,

Liyanagamage (2016), found a significant positive impact of bank market concentration on banking sector competition in Sri Lanka. Thus, as per the contestability literature, the structure of the market is only cause of competition.

Contestability is not necessarily related to concentration or the number of banks (Northcott, 2004). The very valid and significant role played by open entry to the market has adequately been recognized in the contestability literature. The rising agreement in this area is that competitiveness in the market is enabled with less-severe entry barriers, operation of foreign banks in the local context, less restrictions on banking operations and well-developed financial systems. The last two factors i.e., less restrictions on banking operations and well-developed financial systems may indicate that competition from the non-bank sector or inter-industry is important.

In a study done by using 107 countries Barth, Caprio and Levine (2001) concluded that many regulatory controls place in 1999 on commercial banks, including various entry and exit restrictions and practices have affected the degree of competitiveness in the banking sectors. The authors further explain this in another paper and reveal that restricting bank activities is associated with negative bank performance and stability, as compared to a situation when banks can diversify into other financial activities (Barth, Caprio and Levine, 2003). These results further confirm the notion that strong banking powers permit banks to diversify income sources and boost stability. What they have tried to confirm through their study was that the ability of the banks to compete in the market when unrestricted practices of banks improved. The impact of bank regulations, concentration, and institutions on bank net interest margins and overhead expenditures was investigated in a more rigorous way by Demirguc-Kunt, Laeven, and Levine, (2004). For this, they used bank level data across 72 countries while controlling the impact of broader set of macroeconomic, financial, and bank specific traits. One major finding of their study was that tighter regulations on bank entry, restrictions on bank activities, and regulations that inhibit the openness of bankers to conduct their business, boost bank net interest margins. These may be confirmations of the theoretical predictions of the literature, McKinnon (1993), Shaw (1973). They advocate the desirability of financial liberalization measures to free banks from financial repression which may also encourage greater competition among financial institutions.

Mattig (2008) studied on the effect of entry barriers on bank competition in Swiss banking industry during the first phase of globalization and thereafter. They show that market entry efficiency is strongly related to the individual bank's cost of capital and hence the competitiveness of the banking industry. Their findings further revealed a significant pattern in respect of the interaction of industry structure, regulatory reforms and financial market development. The study of Liyanagamage (2018) also reveals that macro environment which characterized with developed capital markets, higher Central Bank policy rates, higher state bank efficiency and high inflationary pressure would restrain the ability of the banking sector to compete in the market. Hence, these empirical findings suggest that not only regulatory reforms or financial liberalization but also general developments in the financial market erode the entry barriers while promoting competition.

Regarding the effect of contestability on bank competition, Claessens & Laeven (2003) study further identified differences among countries in activity restrictions. Their findings reveal that competition enhanced with fewer restrictions. The similar kind of effect was also revealed for the severity of entry restrictions. Accordingly, less severe entry restrictions were found as positively affecting banking system competition. Their findings suggest that more contestable systems are highly competitive. In terms of inter-industry competition, Shrieves, Dahl and Spivey, (2007) provide evidence, by using bank-level data from 13 European countries, that the capital market regime in which banks operate, as determined by features of their national financial markets and securities laws, as well as by the choices that bank owners make regarding use of public equity markets, will influence competitive outcomes in European banking. However, Claessens & Laeven, (2003) find no evidence that there is an impact of the development of the stock markets or insurance industry on the competitiveness of the banking system. Claessens & Laeven, (2003) further investigated the effect of general level of development of a country on the competitiveness in the banking sector. In terms of the general level of development, we find that the GDP per capita and the inflation rate are never statistically significant, and the signs of the coefficients are not always the same. This suggests that there are no general patterns in the degree of competition across countries of different levels of development.

3. Methodology

The initial step of the analysis of this study is to identify the most applicable measurement technique to assess the competitive climate in the Sri Lankan banking sector. By evaluating the well-established competition measurements in the literature, the study used the approach developed by Panzar and Rosse (1987). They define a measure of competition, the *H* as the sum of the elasticities of the reduced-form revenue equation relating gross revenue to a vector of input prices and other control variables. According to them, this statistic can reflect both the structure and the conduct of the market to which the firm belongs; it represents the percentage variation of the equilibrium revenue derived from the unit percent increase in price of all factors used by the bank. With the assumption a production function of *n* number of inputs and single output, the empirical reduced-form equation of the Panzar-Ross model can be written as follows.

$$log\ T\ R_{it} = \alpha + \sum_{i=1}^{n} \beta_i\ log\ W_i + \sum_{J} \lambda_J\ log\ C\ F_j + e \qquad (1)$$

The total interest revenue to total assets (proxy for output price of loans), regressed against input price of labour, input price of deposits and input price of capital. Panzar and Rosse (1987), show that the sum of input price elasticities, $H = \sum_{i=1}^{n} \beta_i$ reflects the competitive structure of the market.

Next step of the analysis is focused on analysing nexus among the financial freedom, inter-industry competition and bank competition in Sri Lanka. Here, the study applies a structural, contestability approach. Hence, like other industries, the level of competition in the banking system is decided to measure by considering the actual behaviour of (marginal) bank conduct. Because, the severity of activity restrictions, as those can restrain the competitive behaviour of banks and limit the degree of intra-industry competition. As Claessens & Laeven, (2003) states the degree of competition from other forms of financial intermediation (capital markets, non-bank financial institutions, insurance companies), will play a role in determining banking system competitiveness. Though one cannot expect to address all these issues, concern with some of these issues will help to get an overall understanding of an economy's competitive climate. Hence, primary focus of the present study is to do an in-depth analysis

on the interaction of financial freedom, inter-industry competition and bank competition.

Thus, the average H-statistic was regressed on the financial freedom and inter-industry competition and can be stated as follows:

$$H_t = \propto_0 + \propto_1 FinFreedom_t + \propto_2 InterInd_t + e_t \quad (2)$$

In the above equation, financial freedom index used as the proxy for financial freedom since it indicates the ability to contest as a free financial institution in the economy. To capture the competition coming from inter- industry, the size of the country's stock market capitalization to GDP, the cumulative asset share of licensed specialized banks, registered finance companies and specialized leasing companies as a percentage of total banking sector assets were used. In Equation 2 H_t the average H-statistic for year *t*, based on individual bank data for the period 1996-2018, and α_0 is the year specific unobservable effect on bank competition in the country. Annual Interest rate also included to the econometrics model to control any macro level impact that can have on the financial markets in the country. Hence Equation 2 can be re-written more specifically as follows.

$$H_t = \alpha_0 + \alpha_1 F\,inf\,r\,eedom_t + \alpha_2 Noncom\,bank_t + \alpha_3 StMkt_t + \alpha_4 IntRate_t + e_t \quad (3)$$

Both accounting data and macro level data were employed in this study. In terms of bank types, the study considers only commercial banks and excluded saving banks from the sample. The study uses an extensive bank level set of panel data and macro data for the period from 1996 to 2018. The sample covers 25 commercial banks. Specifically, bank level panel data was used to run Equation 1 in estimating the H statistics. Then the annual average H statistics was regressed against annual statistics of financial freedom, stock market capitalization and assets share of non-commercial banking sector. The sample of banks is not constant, i.e., we do not require a bank to have existed throughout the sample period to be included in the sample. Thus, in the unbalanced panel the number of banks across years varies during the sample period. The main source of data is the Annual Reports of banks and data obtained from annual reports of Central Bank. The data were analysed using computer statistical package E-views.

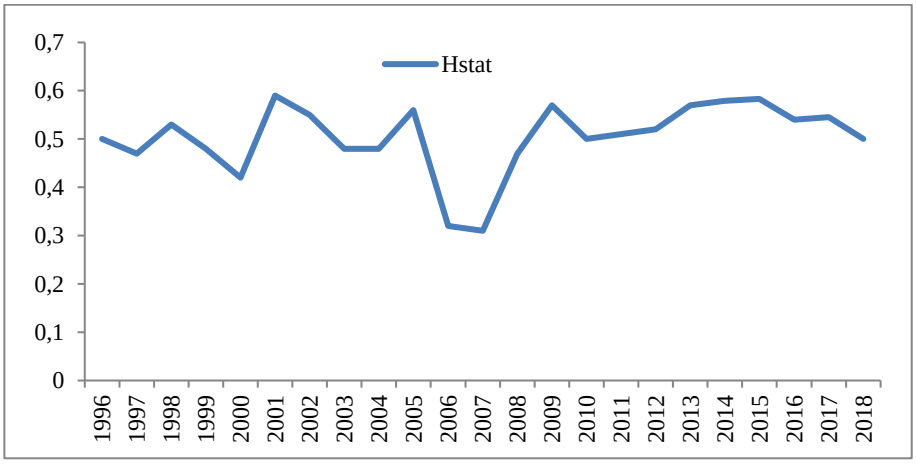
4. Results and Discussion

4.1. Dynamic nature of explanatory variables

Before estimating the parameters for the above equation some dynamics in relation to independent variables has been illustrated to provide a general understanding about the behaviour of the variables in the context of Sri Lanka. The average level of bank competition for the sample period measured with H statistics was stood at 0.5 indicating a moderate level of competition in Sri Lankan banking sector. The time series behaviour of the degree of bank competition however shows a pattern, giving more insight in to the nature of bank competition in Sri Lanka. This behavioural pattern is more clearly observable in Figure 1.

Figure 1

H - Statistics for the sample period

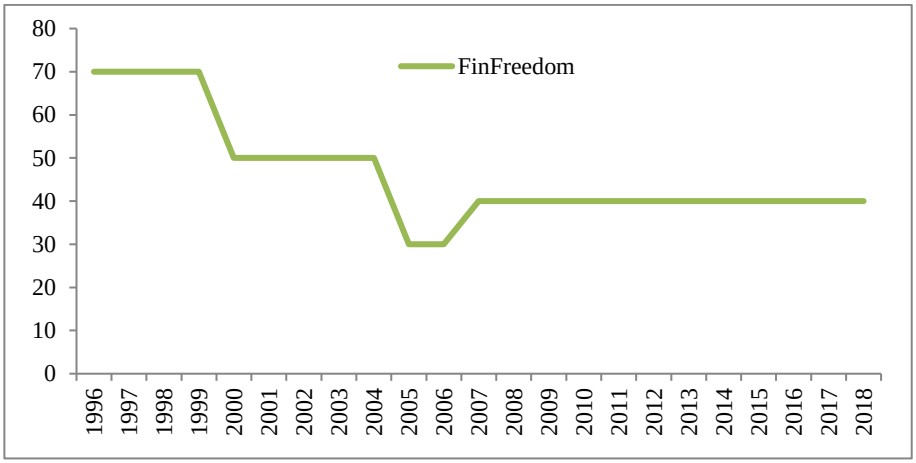


Source: Own calculation based on Panzar - Ross H statistics

Bank competitive behaviour during the period from 1996 to 2018 does not shows any trend, however, shows some ups and downs along the way. Perhaps due to the economic fluctuations and its effect on financial markets are evidenced in this analysis. This evidence indicates that the level of economic development matters for banking sector competitiveness. Specifically, banks are less competitive with price stability, perhaps since interest rates become an unreliable benchmark to price financial services. High and constantly fluctuating interest rates during the period could also have discouraged banks from competing in the market.

Figure 2

Financial Freedom for the sample period



Source: Own construction based on Heritage Foundation

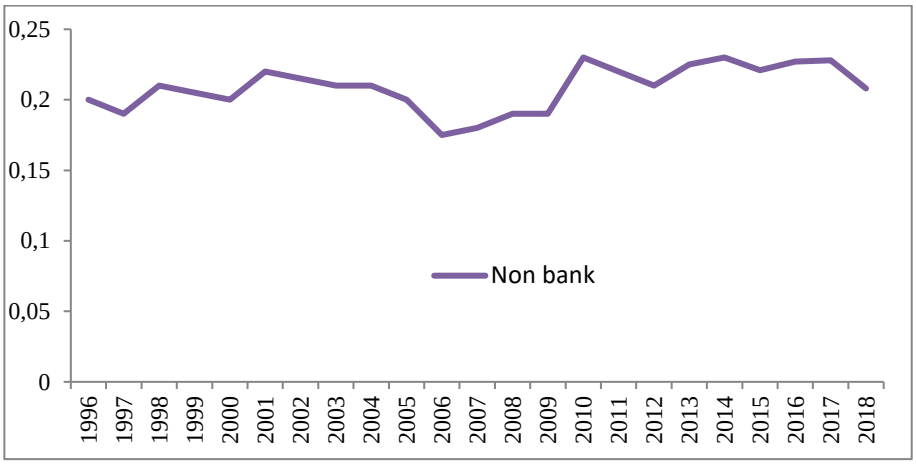
Financial freedom index (compiled by Heritage Foundation) measures the degree of independence of financial institutions from government control and interference. The score is on a scale from 0 to 100 representing highest value to an economy with the highest financial freedom. According to their classification if the index score ranges from '**Negligible government interference' (if the score is 100) and 'Repressive' (if the score is 0)**

According to the Heritage Foundation, an accessible and well-functioning formal financial system ensures the availability of diversified savings, credit, payment, and investment services to individuals. An open banking environment generally expected to encourage competition by expanding financing opportunities and promoting entrepreneurship. So that banks can be the most efficient financial intermediator between depositors and borrowers. The index shows step wise decline during the sample period. It had been comparatively higher in period 1996-1999 and has declined thereafter until year 2006. The index has again improved after 2006 and remained unchanged until 2018. This means (according to the interpretations of Heritage Foundation) that financial freedom of the country has declined from ***'Limited government interference' from 'Considerable government interference' in year 2000, and further declined to 'Extensive government interference' in 2005. This has***

slightly improved again until it reaches a level of 'Strong government interference' in 2010. The current score of the country is comparatively lower than developed countries such as Hong Kong, Australia and Canada and developing countries such as Malaysia, Peru, Singapore, and South Korea.

Figure 3

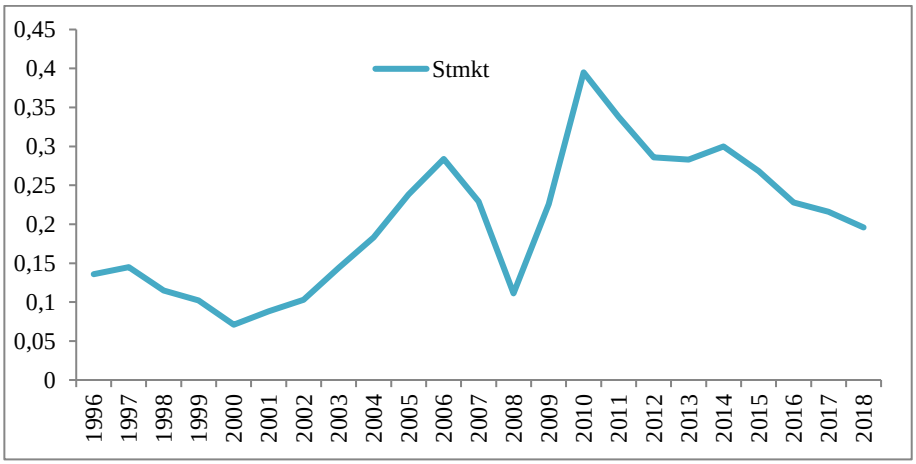
Non-commercial bank assets share for the sample period



Source: Own calculations based on Central Bank Annual Reports

Figure 4

Stock Market performance for the sample period



Source: Own calculations based on Central Bank Annual Reports

Non-commercial bank financial institutions and stock market capitalization also show some noticeable pattern in their time series (Figure 3 and 4). The stock market capitalization as a percentage of GDP shows a significant growth during 2000 to 2006 period and a fall thereafter, until year 2008. This has again started to rise until year 2010 and decline thereafter. The assets share of non-commercial banks however shows some ups and downs along the sample period. However, a closer look at the trend shows a slight decrease in 2008-2009 and 2004 and gradually downward from 2011 to 2018.

4.2. Nexus among Bank Competition, Inter-industry competition and Financial Freedom

To identify how inter-industry competition and financial freedom contribute to the variations in the degree of bank competition in Sri Lanka, the Equation 3 was analysed as a multiple regression analysis with a constant. The results of the initial analysis are given in Table 1.

Table 1

Regression results (Equation 3)

Variable	Coefficient
C	0.1696
Financial Freedom	-0.0423
Inter-industry competition:	
Non-commercial banking sector	2.3943*** (3.102)
Stock Market development	-0.3050** (-2.245)
Macro Impact: Interest rate	-0.7859** (-2.228)
Ad R-squared	*0.59*
F-statistics	*9.22***
Durbin-Watson stat	*2.07*

*Note: The dependent variable is the competition measured with H statistics. t values for coefficients are in parentheses. *** and ** indicate a significant difference from zero at 1% and 5%, respectively.*

As a start, it is useful to note that regression coefficients pertaining to all the variables except financial freedom are statistically significant. The effect of inter-industry competition on the level of bank competition had been measured with the performance growth of non-commercial banking financial sector and stock market. Both variables were statistically significant with a positive sign of non-commercial banking sector and a negative sign of stock market development. The positive sign of non-commercial banking sector performance suggests a need of tough competition by the commercial banking sector to face

the competition coming from such industries. Specially, the competition from leasing and specialized finance companies intensified during the last decade in Sri Lanka. This would force the commercial banking sector to be more competitive in providing financial services and moving towards more diversified financial products. Thus, these results provide significant evidence on positive contribution of non-commercial banking sector performance on bank competition. The coefficient found in relation to stock market development on bank competition is negative, suggesting higher the stock market development lesser the degree of competition. Generally, stock market is the primary source for any company to raise funds for their business expansions. Thus, stock markets are long term financial markets in any economy. However, in most developing countries like Sri Lankan the stock markets are not much developed to raise funds for companies. Therefore traditionally, the banking sector has been the major suppliers of debt capital for Sri Lankan firms. However, when and where the stock markets are developed the firms go for the stock market to raise funds for their investments. This would challenge the ability of commercial banks to compete for corporate loans in the market. Thus, the market for long term debt for the banking sector becomes meagre resulting in less competitiveness on the supply side of the debt capital. Therefore, the found negative effect of stock market development may be particularly true in the context of Sri Lanka.

The study also included annual interest rate to assess if there is any effect this would have on the level of bank competition in the country. The found coefficient is negative, yet statistically significant, revealing a negative effect of constantly fluctuating interest rate in the level of bank competition in the country. High interest rate which often equals more volatile inflation in the country during the sample period discourages banks' ability and willingness to compete in the market. High interest rates make it more costly to borrow and invest. The negative relationship between bank competition and inflation may explain the decrease of appetite of borrowers for debt financing during the recession period. On the other hand, from the supply side banks must take extra risk for lending at high interest rates. Both forces discourage banks to compete in the market during high inflation due to their fear of extra risk taking. This suggests that general patterns of the degree of competition over the period change with the different levels of economic development.

Surprisingly, the financial freedom index does not support a straightforward relationship to the banking sector competition in the country. This is contradictory to McKinnon-Shaw hypothesis. Rather, financial freedom might have indirectly affected the degree of competition in the bank market. Its wider scope of definition may have affected the degree of competition indirectly rather than directly. However, nothing much can be explained here as, this needs further analysis on the other driving forces of bank competition and their interactions with financial freedom of the country.

4.3. Model fit Statistics

The study also reports here the results of some robustness test to assess the statistical robustness of the estimated model. The estimation procedure employed White's correction for heteroscedasticity consistent estimates. The purpose here was to keep the estimators efficient. Table 1 also provides more information on the explanatory power of the econometric model tested in this study. The adjusted R^2 s specified that the model generally explains 59% of the time series variations in the degree of commercial bank competitiveness in Sri Lanka. The F statistics were also significant at 1% level, indicating high collective power of the variables included in the model in explaining changes in bank competition over time. Durbin-Watson stat for the sample period should was also within the range and confirms that model is free from autocorrelation.

5. Conclusion

This study analysed the impact of financial freedom and inter-industry competition in the financial markets to the degree of commercial banking sector competition in Sri Lanka. One of the important observations noted in this analysis was that the positive contribution of the non-commercial banking sector performance on commercial banking sector competition in Sri Lanka. Allowing the non-commercial banking financial sector to engage in traditional banking activities would in turn enhance the whole financial system's capacity for competition thereby fostering efficiency in financial resource allocation. Therefore, there is no need to raise the nominal interest rate to maintain large positive differences between deposit and lending rates in future. Hence formulating policies enabling competitiveness in the financial market would certainly cause positive implications on the banking sector competitiveness.

The second most important observation found in this study is the insignificant impact that financial freedom (index) of the country has on the level of bank competition. Financial Freedom Index showed deterioration and consistent during the recent years, and statistical evidence of the present study does not directly support any significant effect on competition in commercial bank of the country. This perhaps question about the pure application of McKinnon-Shaw paradigm in the context of developing countries. This is because, credit rationing of a banking system is happened not only due to financial repression but also due to many reasons. It might be due to the reasons such as asymmetric information and other market imperfections. Financial repression is therefore only one cause of credit rationing. Further, there is no government bond market or efficient tax system operate in most of the developing countries including Sri Lanka. In such kind of situations financial repression perhaps the only option available for these countries to finance the government. Therefore, it is not very easy to fully liberalize the financial system in countries like Sri Lanka although financial liberalization works quite well in the context of developed countries, Furthermore, unlike in developed countries, the relationship between interest rate, saving and investment is quite complex in developing countries. However, time series analysis of a single country and the static nature of financial freedom index of Sri Lanka observed during the sample period perhaps limit the scope of this research for further commenting on financial freedom-competitiveness nexus.

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