



Effect of Macro-Economic Factors on the Interest Rate Spread among Licensed Commercial Banks in Sri Lanka

Kumari D.A.T

Wayamba University of Sri Lanka

datkumari@wyb.ac.lk

datkumari@gmail.com

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ABSTRACT

This research highlights the effect of macroeconomic determinants on the interest rate spread in licensed commercial banks in Sri Lanka. Based on existing literature, the study focuses on four key macroeconomic factors influencing interest rate spreads: Inflation rate, Bank rate, Exchange rate, and Treasury bill rate. The research utilizes secondary data obtained from the Central Bank of Sri Lanka, covering the period from January 2003 to December 2023, and analyzes it using a regression model. The E-Views statistical package was employed to process and analyze the data sourced from the Central Bank's annual reports and website for the specified period.

Correlation analysis was employed to explore the relationships between the independent and dependent variables in the study. A regression model was used to assess the impact of macroeconomic factors on the interest rate spread. The results indicate that macroeconomic factors do influence the interest rate spread. Specifically, the study found that the exchange rate and treasury bill rate have a significant relationship with the interest rate spread, while the bank rate and inflation rate do not significantly affect the interest rate spread at a 0.5% significance level. Additionally, the bank rate, inflation rate, and treasury bill rates are positively correlated with the interest rate spread, whereas the exchange rate has a negative correlation. This study adds to the literature on factors that affect the efficiency of interest rate spreads, particularly highlighting the relationships among various aspects of interest rate



spread. The findings could be valuable for financial managers, investors, financial management consultants, and other stakeholders.

Keywords: *Bank Rate, Exchange Rate, Inflation Rate, Interest Rate Spread, Treasury Bill Rate*

1. BACKGROUND OF THE RESEARCH

Globally, governments are increasingly focusing on regulating the financial sector, particularly the banking industry, due to its crucial role in economic performance. A stable macroeconomic environment is essential for the stability of the banking system, which in turn supports effective savings and investment decisions. For sustained economic growth, it is vital to ensure that savings flow into productive investments, necessitating the development of robust financial institutions.

Banks, as financial intermediaries, provide essential financial services to customers for profit, charging interest on loans. Market interest rate fluctuations significantly impact commercial banks, with lending rate changes having a greater effect on profitability compared to deposit rate changes. An efficient financial system performs two key functions: transferring capital from savers to borrowers and directing funds to productive investments while managing risks and facilitating transactions.

In Sri Lanka, a developing country, an effective commercial banking system is crucial for economic efficiency. Interest rate spread (IRS), the difference between average lending rates and deposit rates, is a key indicator of financial performance. A well-functioning banking system supports economic growth by offering higher returns for savers and lower borrowing costs for investors. However, a high-interest rate spread can deter savers with low deposit returns and limit investment opportunities.

Research has shown that factors such as statutory reserve requirements and high savings certificate rates can contribute to high IRS in other countries. This study aims



to identify the macroeconomic determinants of interest rate spread in Sri Lanka, focusing on factors like inflation rate, bank rate, exchange rate, and treasury bill rate.

1.1. Research Objectives

In this research, the relationship between interest rate spread and various macroeconomic variables is analyzed and tested. The results may reveal how the dependent and independent variables are connected, which can assist in making informed decisions regarding the commercial banking sector. The main objective of this research is to examine to what extent the macro-economic factors are affecting on Interest Rate Spread (IRS) in Sri Lankan banking sector. In addition to the main objective, the study has several specific objectives:

- i. To analyze how the bank rate affects the interest rate spread in the Sri Lankan banking sector.
- ii. To assess the effect of the exchange rate on the interest rate spread in the Sri Lankan banking sector.
- iii. To evaluate the influence of the inflation rate on the interest rate spread in the Sri Lankan banking sector.
- iv. To investigate the impact of the treasury bill rate on the interest rate spread in the Sri Lankan banking sector.

2. LITERATURE REVIEW

Interest rate spread refers to the difference between the average interest rate a bank pays on deposits and the rate it earns from loans. This spread is crucial for a bank's profitability and can be thought of as a profit margin. According to Mustafa and Younus (2009), the interest rate spread (IRS) is the gap between the interest income a bank receives and the interest it pays. IRS can be assessed by comparing the ratios of interest received on assets to interest paid on liabilities. Factors influencing IRS include inflation, operating costs, market share of deposits, regulatory reserve



requirements, and taxes. A high IRS often indicates inefficiency and low competition within the banking sector.

Banda (2010) found that a high IRS is statistically significant for government policies aimed at reducing the spread over time. There is a negative relationship between IRS and a country's growth aspirations, suggesting that increasing competition in the banking sector can lower the spread, leading to higher investments and economic growth. Ngugi (2001) explained that the IRS is shaped by the banking sector's microstructural features and the broader policy environment. Banks that are risk-averse typically have narrower spreads compared to risk-neutral banks due to higher optimal interest rates and reduced credit volume. Macroeconomic variables, including monetary and fiscal policies, also affect the spread, as noted by Kumari (2012: 2019).

Globally, the magnitude of the IRS varies. It tends to be inversely related to financial sector efficiency, which is a result of a competitive environment. Inefficient financial sectors, prevalent in weaker economies, face higher intermediation costs for mobilizing deposits and channeling them into productive uses (Jayaraman & Sharma, 2003).

The IRS is essentially the difference between the interest rate charged on loans and the rate paid on deposits. This difference ideally reflects the spread between the average loan interest rate and the average deposit interest rate for individual banks (Sologoub, 2006). Variations in terms and conditions across countries can limit comparability. The spread indicates how much more a bank earns from lending compared to the rate it pays on deposits. While similar to net interest margin, IRS is a hypothetical figure representing potential earnings if all assets were borrowed and invested (Drake, Deborah & Elisabeth, 2002).

Numerous studies have examined IRS determinants both within Nigeria and internationally, including Randall (1998), Brock and Rojas-Suarez (2000), Chirwa and Mlachila (2004), Gelos (2006), Crowley (2007), Dharmarathna & Kumari



(2021), and Abiodun and Tennant (2008). However, few have explored how IRS affects banking sector performance. Chand (2002) identified several causes for high IRS in Asia, including insufficient competition, small market sizes, high operating costs, and regulatory controls. Interest rate spreads can be a significant source of profit when large, as banks benefit from the difference between high loan rates and low deposit rates. Conversely, shrinking spreads can erode this profit (Crane, 2010). Reserve requirements often correlate positively with IRS. Regulations related to liquidity, government securities, and capital controls can impact bank profit margins and IRS. High reserve requirements can lead to wider bank margins as banks pass these costs onto customers (Barajas & Steiner, 1999).

Barajas and Steiner (1999) noted that deregulation increased bank competitiveness, reduced market power, and diminished financial taxation. Bank spreads were found to be responsive to non-financial costs and changes in loan quality, with market power and loan loss provisions significantly influencing spreads during the 1990s financial liberalization (Moore & Craigwell, 2000). Hanson & Rocha (1986) found that high spreads could deter savers and investors due to low returns and reduced investment opportunities. Bank-specific factors, industry/market factors, and macroeconomic variables all contribute to high IRS. Demirguc-Kunt (1998), Moore (2000), and Sologoub (2006) identified bank size, ownership, loan portfolios, capital adequacy, and operating costs as key drivers of IRS. Ng'etich and Wanjau (2011) used a descriptive research design to show that IRS impacts the performance of Kenyan banks, while Quaden (2004) suggested that an efficient banking system benefits the economy by offering higher returns for savers and lower borrowing costs.

Wendell and Valderrama (2006) linked macroeconomic instability with high bank spreads, increasing the risk of default. Policymakers and businesses have expressed concerns over high IRS, fearing it hinders private investment and economic growth, reflecting inefficiencies in the banking sector (Mustafa & Yunus, 2009). High borrowing costs can filter out viable projects, reducing expected returns and discouraging savings.



Boldbaatar (2006) argued that narrow or negative spreads might not reduce the social cost of intermediation, as high spreads often reflect greater risk perceptions. Banks in less efficient markets, such as those with high operating costs, may have higher spreads (Ramful, 2001). Technological advancements and market power also influence IRS, with foreign banks often maintaining higher spreads due to their operational models (Grenade & Kary, 2007). Central bank regulations have been found to significantly impact commercial bank spreads (Randall, 1998; Greenidge & McClean, 1997). Microfinance institutions, targeting specific customer segments, also adjust their pricing strategies to maintain competitive spreads (Frenkel & Razin, 2010). Chirwa and Mlachila (2002) found that financial reforms in Malawi led to increased spreads due to monopoly power, reserve requirements, central bank rates, and inflation.

Boldbaatar (2006) highlighted that capital market development can reduce overall IRS by improving profitability and efficiency through mergers and acquisitions. Factors such as bank size and loan portfolios influence IRS. Bank-specific factors, including asset composition, also affect spreads (Bank, 2008). Further research in various contexts, including Tshegofatso Nanjunga (2014) and Jagirani et al. (2017), has shown that macroeconomic variables, such as GDP and inflation, significantly affect IRS. In Ghana, increased exchange rate volatility and fiscal deficits were linked to higher IRS (African Journal of Economic and Management Studies, 2015). In Namibia, treasury bill rates and inflation contributed to higher IRS (Joel Hinaunye Eita, 2012).

Despite extensive financial reforms, high IRS remains a common issue in developing countries (Tennant & Folawewo, 2008). In Sri Lanka, research by Selliah Sivarajasingham (2015) and Perera et al. (2012) explored the Fisher Effect and market concentration, finding that higher concentration allows banks to charge higher spreads. In Australia, Poke and Graeme (2007) showed that term spreads can forecast GDP growth. Savings and investments play crucial roles in determining interest rates (Nduati, 2013), with low deposit rates reducing savings and high lending rates



discouraging borrowing. Effective interest rate decisions are essential for financial sector stability and economic growth (Sharp, 2003). As banks strive to balance efficiency and profitability, the impact of interest rate spreads on overall economic performance remains a key area of research.

In addition to the comprehensive literature review, the researcher conducted a meta-analysis to synthesize the findings from previous studies and validate the independent variables listed in Table 1.



S/ No	Author	Research topic	Independent Variables	Method used	Research Place
01	Abiodun O. Folawewo & David Tennant (2008)	Determinants of interest rate spreads in Sub Saharan African Countries	-Inflation -Real per capita GDP -Treasury bill -Population -Banking sector development -Reserve requirement	Regression analysis Correlation analysis	Sub Saharan African countries
02	Joel Hinaunye Eita, (2012)	Explaining interest rate spread in Namibia	-Treasury bill rate, -Inflation rate, -Bank rate	VAR or Multivariate cointegration method	Namibia
03	Tshegofatso Nanjunga, Mogale M.Ntsosa.G aotlhobogwe Motlaleng (2014)	Determinants of Commercial banks' interest rate spreads in Botswana	-GDP -Inflation and -Bank concentration, -Tax variable, -Financial crisis and monetary	Time series cross-sectional analysis	
04.	Obeng, S. K., & Sakyi, D. (2017)	Macroeconomic determinants of interest rate spreads in Ghana	-Inflation, -Exchange rate volatility, -Deposit interest rate -Volatility, Broad money -Growth -Monetary policy rate	Regression analysis Correlation analysis	
05.	A.A.Azeez & Sachithra Gamage (2013)	The Determinants of Net Interest Margins of Commercial Banks In Sri Lanka	Staff cost, Capital cost, Market power, Inflation, T-Bill rate, Management quality, Statutory reserve	Regression analysis Correlation analysis	



			requirement and GDP growth		
06	Moses C. Kiptu (2014)	Determinants of Interest Rate Spread: Some Empirical Evidence from Kenya's Banking Sector	TII - Total interest income NII - Non interest income TIE- Total interest expenses TOE - Total operating expenses LLP - Total loan loss provisions.	Decomposition technique Panel data analysis	
07	David Kwashie Garr (2013)	Macroeconomic and Industry Determinants of Interest Rate Spread-Empirical Evidence	Bank ownership, Management inefficiency, Gross Domestic Product Per Capita (GDPPC), Government Securities, Government Borrowing	Regression and moderation analysis using SPSS 22	
08	Ibrahim M. Sheriff & Gilbert K. Amoako (2014)	Macroeconomic Determinants of Interest rate Spread in Ghana:	Inflation ,Treasury bill rate (TB) ,Crowding out (CD)	Autoregressive distributed lag (ARDL) cointegration and Vector Error Correction analysis	
09	Rose W. Ngugi (2001)	An empirical analysis of interest rate spread in Kenya	High intermediation costs, treasury bill rate	Regression analysis Descriptive statistics, Correlation	
10	Maureen Were and	Assessing the determinants of interest rate spread	-Credit risk -Bank size	Descriptive and	



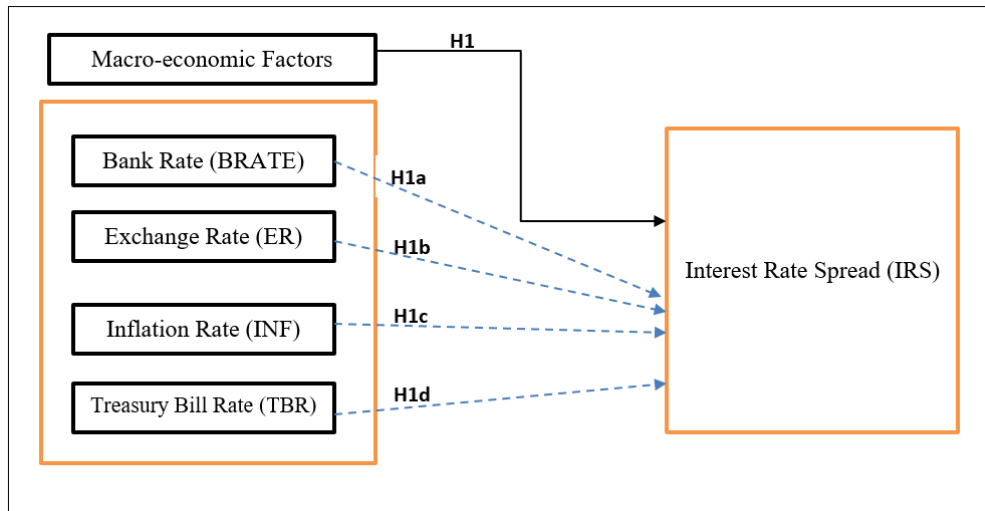
	Joseph Wambua (2013)	of commercial banks in Kenya: An empirical investigation	-Market concentration -Operating costs: -Liquidity risk -Return on average assets	regression analyses Panel data model Cross section data models	
11	Mohamed Sayed About El-Saoud (2014)	The effect of interest rate, Inflation rate and GDP on National saving rate	-Real GDP growth rate -Expected inflation rate measured by consumer price index (CPI) -Nominal interest rate on saving deposits (INT)	Descriptive and regression analyses Time series analysis	
12	Maureen Were, Joseph Wambua (2014)	What factors drive interest rate spread of commercial banks? Empirical evidence from Kenya	-Bank size -Credit risk -Total loans ratio -Return on average assets -Operating costs	Panel data analysis	
13	Navoda Edirisinghe, Selliah Sivarajasingham, John Nigel (2015)	An Empirical Study of the Fisher Effect and the Dynamic Relationship between Inflation and Interest Rate in Sri Lanka	-Treasury bill rate -Colombo Consumer Price Index (CCPI)	Time Series Analysis	
14	Shama Noreen, Amara Azeem, Iqra Iftikhar, Sadia Shahbaz (2018)	Effect of Macroeconomic Variables on the Economic Growth of Pakistan	-Inflation rate -Interest rate -Exchange rate	linear regression model	



15	Shariq Ahmad Bhat, Mahboob Rasul Laskar (2016)	Interest rate, Inflation rate and Gross domestic product of India	-Interest rate -Inflation rate	multiple linear regression with the help of SPSS software	
16	W.M.Hema chandra	Interest Rate Behaviour: The Sri Lankan Case	The Supply and demand conditions Monetary policy of the Central Bank Inflation loan type	Time Series Analysis	
17	Saad Siddiqui, Kamran Shahzad Malik, Syed Zulfiqar Ali Shah (2012)	Impact of Interest Rate Volatility on Non-Performing Loans in Pakistan	Volatility of Weighted Average Lending Interest Rate	simple regression technique, GARCH volatility measure	
18	C Amarasekara (2005)	Interest Rate Pass-through in Sri Lanka	-Exchange rate channel -Other asset effect channel, -Credit channel, and -Expectations.	Descriptive statistics Time Series Correlation	
19	Shahidul Islam, Shin-Ichi Nishiyama (2015)	The determinants of bank net interest margins: A panel evidence from South Asian countries	-Relative size of the bank -Non-performing loan (NPL) -Liquid asset to total asset ratio -Equity to total asset ratio	Panel data analysis	
20	Ng'etich Joseph Collins, Kenneth	The effects of interest rate spread on the level of non-performing assets: A case of	non-performing loans	means, relative frequencies, mode, median and	

	Wanjau (2011)	commercial banks in Kenya		standard deviation	
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Figure 1: Conceptual Model



Author Developed

2.1. Formation of Hypotheses

A hypothesis is a preliminary answer to a research question, proposed for the purpose of testing. Formulating a hypothesis involves identifying one characteristic, variable, or descriptor within a sample that influences another characteristic, variable, or descriptor either within the same sample or across different samples. The influencing characteristic is known as the independent variable, while the one being influenced is referred to as the dependent or response variable. The hypothesis must be measurable. In their 2008 research, Abiodun O. Folawewo and David Tennant utilized a hypothesis to analyze data concerning the relationship between interest rate spread in Sub-Saharan African countries. According to William M.K. Trochim (2020), a hypothesis is a precise prediction stated in specific terms rather than theoretical ones, outlining what the researcher expects to happen in the study. Not all studies include hypotheses; some are exploratory, aimed at thoroughly examining a subject area to

develop hypotheses or predictions for future research. A single study may have multiple hypotheses. In this study, the researcher formulated the main hypothesis to explore the relationship between independent variables and the dependent variable:

H1: Macroeconomic factors, including bank rate, exchange rate, inflation rate, and treasury bill rate, significantly impact the Interest Rate Spread (IRS) in the Sri Lankan banking sector.

Alongside the main hypothesis, the research also addresses specific objectives, leading the researcher to develop additional specific hypotheses accordingly. According to the research, the relationship between the bank rate and interest rate spread is analyzed using statistical tools. Although there isn't a specific theory that directly explains the relationship between the bank rate and interest rate spread, there are empirical studies that provide a basis for developing hypotheses regarding these variables. For example, in the study by Joel Hinaunye Eita (2012), it was found that an increase in the bank rate is associated with a rise in the interest rate spread. This positive relationship suggests that as the cost of funds for commercial banks goes up, they may pass this cost onto consumers through a higher interest rate spread. Based on this evidence, the first hypothesis can be stated as:

H1a: The bank rate has a significant impact on the interest rate spread in the Sri Lankan commercial banking sector.

Supported by theories and previous research, a hypothesis can be formulated regarding the relationship between interest rate spread and exchange rate. As a macroeconomic variable, the exchange rate fluctuates daily in relation to each currency, influencing the interest rate spread in Sri Lanka's commercial banking sector. Obeng and Sakyi (2017) highlight that long-run estimates show factors such as inflation, fiscal deficit, crowding-out effect, exchange rate volatility, deposit interest rate volatility, economic growth, money growth, and monetary policy rate all contribute to increasing interest rate spreads in Ghana. Drawing from this study, the researcher proposes the following hypothesis:



H1b: *The exchange rate has a significant impact on the interest rate spread in Sri Lanka's commercial banking sector.*

The inflation rate is a significant factor in the economy of every country. According to research by Tennant and Folawewo (2010), the interest rate is a crucial element in the profitability of commercial banks. It represents the income that banks earn on their investments and the cost that consumers and businesses pay for borrowed funds. Inflation reduces the purchasing power of interest income, leading lenders to demand higher payments to offset the decrease in real value. As a result, inflation tends to drive up nominal or money interest rates. Studies by Chirwa and Mlachila (2004) and Brock and Suarez (2000) also support the existence of a relationship between inflation rate and interest rate spread. Additionally, Ibrahim Sheriff and Gilbert (2014) found that long-term estimates show a positive and significant relationship between inflation, as measured by the Colombo price index, and interest rate spread. Based on these findings, another hypothesis can be stated as:

H1c: *The inflation rate has a significant impact on the interest rate spread in Sri Lanka's commercial banking sector.*

As a macroeconomic variable, the treasury bill rate is crucial because it serves as a short-term funding mechanism. According to Keynesian theory and market segmentation theory, the treasury bill rate is closely related to the interest rate spread. Previous research by Ngugi (2001) noted that fiscal policy actions led to an increase in treasury bill rates and heightened inflationary pressure, prompting tighter monetary policy. Folawewo and Tennant (2008) suggested that the treasury bill rate is expected to positively influence the interest rate spread—a lower treasury bill rate tends to decrease the interest rate spread, while a higher treasury bill rate causes the spread to increase. Ibrahim Sheriff and Gilbert (2014) added that treasury bills serve as an alternative investment for savers, and an increase in the treasury bill rate typically has a negative effect on the interest spread. Based on this theoretical and empirical background, the hypothesis regarding the relationship between the treasury bill rate and interest rate spread can be stated as follows:



H1d: *The treasury bill rate has a significant impact on the interest rate spread in Sri Lanka's commercial banking sector.*

3. METHODOLOGY

The research onion model, introduced by Saunders, Lewis, and Thornhill (2019) in their book "Research Methods for Business Students," outlines the various stages involved in writing a dissertation, aiding students in developing a well-organized methodology. This model is widely recognized in academia and is frequently used by researchers to craft the methodology section of their work. The research onion emphasizes that each layer of the model contributes significantly to the credibility of the research, and therefore, no layer should be ignored. The onion's layers provide a detailed roadmap for the research process, making it adaptable to almost any research methodology. Researchers are advised to move from the outer layers to the inner layers, with each subsequent layer offering a more detailed stage of the research process. The model is particularly useful for choosing the most logical methodological approach, which is crucial for producing credible research.

The outermost layer of the research onion concerns research philosophy, which involves the underlying beliefs and assumptions about knowledge development. The main philosophies include ontology, epistemology, and axiology. Ontology deals with the nature of reality, epistemology with the validity of knowledge, and axiology with the influence of values and opinions on research. In this research, a positivist philosophy is adopted, which involves forming hypotheses that can be tested and analyzed. This approach aligns with quantitative methodologies, which focus on numerical data and statistical analysis. The research onion suggests various methodological choices, including mono-method, mixed-method, and multi-method approaches, with this research employing a quantitative, deductive approach. This involves starting with a theory and hypotheses and testing them through data collection. The research also uses a longitudinal time horizon, which involves collecting data over an extended period. In this case, data from 2003 to 2023 are analyzed to examine changes over time. The final layer of the research onion involves

the techniques and procedures for data collection and analysis. This research uses secondary data from reliable sources, such as audited annual reports and Central bank publications, and employs EViews for statistical analysis. In conclusion, the research onion model provides a comprehensive framework for structuring research, ensuring that each step is methodically considered, leading to credible and reliable results.

4. Data Analysis and Discussion

4.1. Descriptive statistics

Descriptive statistics provide an overview of patterns and general trends within a data set. Typically, they are used to analyze or explore one variable at a time. The table below presents the results of descriptive statistics, including the mean, standard deviation, minimum, and maximum values of the study. These values were analyzed using the EViews analytical tool.

Table 2: Descriptive Statistics

	BRATE	ER	INF	TBR	IRS
Mean	1.178808	2.089289	0.800998	0.962232	0.490653
Median	1.176091	2.059438	0.827162	0.934498	0.546543
Maximum	1.255273	2.260376	1.353426	1.328380	1.047275
Minimum	1.176091	1.975487	0.329398	0.758912	-1.154902
Std. Dev.	0.014449	0.077060	0.258683	0.129336	0.364801
Skewness	5.116482	0.569506	0.256064	0.987056	-1.860491
Kurtosis	27.17839	2.315090	2.594375	3.234906	7.685802
Jarque-Bera	5859.119	15.01483	3.627848	33.59456	304.3209
Probability	0.000000	0.000549	0.163013	0.000000	0.000000
Sum	240.4769	426.2150	163.4036	196.2954	100.0932
Sum Sq. Dev.	0.042382	1.205459	13.58415	3.395729	27.01523
Observations	204	204	204	204	204

Table 2 presents the descriptive statistics for the variables, based on a sample of 204 observations. The mean, or average value, provides an overall measure of central tendency for the data. The bank rate (BR) in the commercial banking sector has a mean of 1.1788%, with a standard deviation of 0.0144, indicating the extent of deviation from the mean. The bank rate values range from a minimum of 1.1760% to a maximum of 1.2552%. The bank rate is a key factor in determining the interest rate spreads in the banking sector, as it influences the control of the money supply. The exchange rate (ER) shows a mean monthly percentage change of 2.0892%, with a standard deviation of 0.0770. The exchange rate fluctuates between a high of 2.2603% and a low of 1.9754%, indicating variability within the dataset. The inflation rate (INF) in the commercial banking sector has a mean of 0.8009% and a standard deviation of 0.2586. The values range from a minimum of 0.3293% to a maximum of 1.3534%, reflecting the impact of inflation on the interest rate spread during the selected period. The mean value of the interest rate spread (IRS) is 0.4906%, with a standard deviation of 0.3648. The IRS ranges from a maximum of 1.0472% to a minimum of -1.1549%, suggesting that the selected commercial banking sector is in a relatively favorable position. Lastly, the treasury bill rate has a mean value of 0.9622%, with a standard deviation of 0.1293. The rate varies between a maximum of 1.3283% and a minimum of 0.7589% over the selected time period.

4.2. Correlation Analysis

A correlation coefficient is typically used in correlational studies, ranging from +1 to -1. A value near +1 indicates a strong positive correlation, while a value near -1 indicates a strong negative correlation. Values close to zero suggest that the variables are uncorrelated. In this study, Pearson correlation coefficients were employed to examine the relationships between financial performance, interest rate spread, deposit interest rate, and lending interest rate of organizations. The correlation between dependent and independent variables measures the degree of linear association, with significance assessed at a 95% confidence level. Correlation analysis was conducted to explore the relationship between macroeconomic variables and interest rate spread,

using Pearson's correlation analysis for the study variables. The correlation matrix, presented in Table 3, summarizes the results based on data from the commercial banking sector.

Table 1: Covariance Analysis

Covariance Analysis: Ordinary

Date: 02/05/24 Time: 23:46

Sample: 1 204

Included observations: 204

Correlation Probability	BRATE	ER	INF	TBR	IRS
BRATE	1.000000 -----				
ER	-0.251200 0.0003	1.000000 -----			
INF	-0.000476 0.9946	-0.613140 0.0000	1.000000 -----		
TBR	-0.035612 0.6131	-0.202235 0.0037	0.635012 0.0000	1.000000 -----	
IRS	0.093131 0.1852	-0.406825 0.0000	0.593008 0.0000	0.693914 0.0000	1.000000 -----

The results of the correlation analysis are summarized in Table 3. The correlation coefficient, ranging from +1 to -1, indicates the strength and direction of the relationship between variables. A value close to 0 suggests little to no correlation.

Key findings include the correlation between bank rate and exchange rate is -0.2512, indicating no significant correlation, with a statistically significant p-value of 0.0003. Bank rate and inflation rate have a near-zero correlation (-0.0004) and are not statistically significant (p-value of 0.9946). Inflation rate and exchange rate have a correlation of -0.6131, with a strong, statistically significant negative relationship (p-value of 0.0000). Interest rate spread and bank rate show no significant correlation (0.0931) and are not statistically significant (p-value of 0.1852). Interest rate spread

and exchange rate have a negative correlation (-0.4068), statistically significant (p-value of 0.0000). A positive correlation exists between interest rate spread and inflation rate (0.5930), statistically significant (p-value of 0.0000). Treasury bill rate shows no significant correlation with bank rate (-0.0356) and exchange rate (-0.2022), though the latter is statistically significant (p-value of 0.0037). Treasury bill rate positively correlates with inflation rate (0.6350) and interest rate spread (0.6939), both statistically significant (p-value of 0.0000). The analysis indicates significant relationships between exchange rate and interest rate spread, inflation rate and interest rate spread, and treasury bill rate and interest rate spread. However, there is no meaningful relationship between the bank rate and interest rate spread.

4.3. Testing Hypotheses

The summary of the data analysis given below through the hypothesis testing. The researcher used macroeconomic variables like inflation rate, bank rate, exchange rate, treasury bill rate to measure the impact for interest rate spread. The related β values and the P value of the t statistic is considered according to the regression analysis.

Table 4: Regression Analysis

Dependent Variable: IRS

Method: Least Squares

Date: 05/18/21 Time: 12:16

Sample: 1 204

Included observations: 204

Variable	Coefficient	Std. Error	t-test	Prob.
C	-0.688705	1.811887	-0.380104	0.7043
BRATE	1.451564	1.255246	1.156398	0.2489
ER	-1.079368	0.312690	-3.451875	0.0007
INF	0.095882	0.113945	0.841474	0.4011
TBR	1.711179	0.180795	9.464735	0.0000



R-squared	0.559413	Mean dependent var	0.490653
Adjusted R-squared	0.550557	S.D. dependent var	0.364801
S.E. of regression	0.244565	Akaike info criterion	0.045531
Sum squared resid	11.90257	Schwarz criterion	0.126858
Log likelihood	0.355819	Hannan-Quinn criter.	0.078429
F-statistic	63.16743	Durbin-Watson stat	0.118961
Prob(F-statistic)	0.000000		

The regression analysis examining the Interest Rate Spread (IRS) as the dependent variable reveals insights into various macroeconomic factors. The constant term has a coefficient of -0.688705, indicating a slight negative baseline effect, but its high p-value (0.7043) shows this impact is not statistically significant. The Bank Rate (BRATE) has a positive coefficient of 1.451564, suggesting a potential increase in IRS with rising rates, but its significance level ($p = 0.2489$) is inconclusive. In contrast, the Exchange Rate (ER) has a substantial negative coefficient (-1.079368) that significantly affects the IRS ($p = 0.0007$), indicating that fluctuations in the exchange rate inversely impact the spread. The Inflation Rate (INF) shows a positive coefficient (0.095882), but its effect on IRS is not significant ($p = 0.4011$), suggesting inflation may not be a key driver in this context. The Treasury Bill Rate (TBR) has a strong positive coefficient (1.711179) with a highly significant p-value (0.0000), indicating its considerable influence on the IRS. The model's R-squared value of 0.559413 indicates that over half of the variability in IRS is explained by these factors, while the low p-value for the F-statistic confirms the overall model's statistical significance. Overall, this analysis suggests that while TBR and ER significantly influence IRS, BRATE and INF have uncertain impacts in the Sri Lankan context.

While no definitive theory explains the relationship between bank rate and interest rate spread, Joel Hinaunye Eita (2012) found that an increase in bank rate is associated with a rise in interest rate spread. The regression analysis reveals a β coefficient of 1.451564 for the bank rate (BRATE), suggesting a potential increase in IRS with higher bank rates. However, the significance level (P-value) of 0.2489 indicates that



this relationship is not statistically significant, implying that the observed effect might be due to chance. The t-statistic value (1.156398) supports this lack of significance, leading to the conclusion that hypothesis H1a is not supported by the data. There is no established theory linking exchange rate and interest rate spread. However, Obeng and Sakyi (2017) suggest that various factors, including exchange rate volatility, influence interest rate spreads. The findings indicate a significant negative impact of exchange rate on IRS, with a β coefficient of -1.079368. The P-value of 0.0007 indicates strong statistical significance, and the t-statistic value of -3.451875 further supports this conclusion. Thus, hypothesis H1b is validated by the data.

Research by Tennant and Folawewo (2010) indicates that interest rates are crucial for bank profitability. While some studies suggest a positive relationship between inflation and interest rate spread, Crowley (2007) argues that higher inflation may not significantly influence the spread. The analysis yields a β coefficient of 0.095882, indicating a positive relationship, but the P-value of 0.4011 and t-value of 0.841 suggest this impact is not statistically significant. Therefore, hypothesis H1c is not supported. Keynesian theory and market segmentation theory posit a strong link between treasury bill rates and interest rate spread. Previous research, such as Ngugi (2001) and Folaweo and Tennant (2008), indicates that treasury bill rates positively influence the interest rate spread. The regression analysis shows a β value of 1.711179 for the treasury bill rate, indicating a positive relationship with IRS. The P-value of 0.0000 and a t-statistic value of 9.464735 confirm the significance of this influence. Therefore, hypothesis H1d is supported by the analysis.

5. CONCLUSION AND RECOMMENDATIONS

The study examines the macroeconomic variables influencing Interest Rate Spread (IRS) in Sri Lanka's commercial banking sector, focusing on key factors such as bank rate, inflation rate, exchange rate, and treasury bill rate. The regression analysis reveals an R^2 value of 0.5594, indicating that approximately 55.94% of the changes in IRS are accounted for by variations in these macroeconomic factors. The



associated F-statistical probability value of 0.0000 is statistically significant, reinforcing the model's explanatory power in understanding IRS variability.

In Sri Lanka, the banking and financial sector plays a crucial role in economic development, with Interest Rate Spread (IRS) serving as a key performance indicator. The IRS in Sri Lanka is notably higher than in neighboring regions, posing challenges for economic growth. Therefore, it is essential to understand and manage the factors influencing IRS to maintain it at moderate levels conducive to development. For commercial banks regulated by the Central Bank of Sri Lanka, incorporating insights from the study is vital for improving decision-making. The findings reveal that exchange rates and treasury bill rates significantly impact IRS, prompting banks to adjust their financial products and pricing strategies accordingly. Conversely, the minimal effects of the bank rate and inflation rate on IRS suggest a need for banks to rethink their risk assessment and pricing approaches to avoid uncompetitive pricing and mispriced risks.

For policymakers, the study emphasizes the importance of stabilizing exchange rates to reduce IRS volatility, creating a more predictable financial environment for investment. Adjusting treasury bill rates can also influence the profitability and lending behaviors of the financial sector, aiding in the management of economic cycles. Furthermore, the findings regarding the bank rate point to potential inefficiencies in the current monetary policy transmission mechanism, warranting a reevaluation to better align it with economic goals and market conditions.

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