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The Monetary and Macroeconomic Conditions on Interest Rate Spread: Empirical evidence from Indonesia

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Abstract

The gap between the credit rate and deposit rate has become a consideration in making monetary policy in Indonesia. This study examines the Interest Rate Spread (IRS) in Indonesia which is influenced by monetary instrument variables, macroeconomic conditions, and event structural changes (Asian Crisis, Global Financial Crisis, COVID-19 and Election year). The analytical method used is the Autoregressive Distributed Lag (ARDL) Model with data observations from 1990 - 2021. The purpose of this study is to determine the strength of the IRS on economic conditions in Indonesia. The results of the analysis show that in the long run, M2, total credit and inflation have a negative effect on the IRS variable, while the household consumption variable has a positive effect. The policy implications need to be applied in efforts to control the IRS are related to monetary policy and reduce the lending rates to maintain the demand for loans and expected to encourage economic movement, an improving economy and better business cycles might lead to lower interest rates.

Key words : *Interest Rate Spread, monetary variable, macroeconomic conditions, event structural changes, ARDL*

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INTRODUCTION

The banking sector has an important role in a country's economy by promoting economic development through efficient resource mobilization in productive sectors. The flow of funds from savings to borrowers/ credit is carried out as a process of mobilizing important resources and is the main source of bank profitability (Kashem & Rahman, 2017). Commercial banks make their profits by paying lower deposit rates and accepting higher lending rates. The recent phenomenon in response to highly competitive financial markets, banks will increase lending rates to attract savings or lower lending rates to attract loan funding, the impact of these two actions can reduce interest rate spreads (Chiang & Tsai, 2019).

One important of measuring device for evaluating the actions of the banking sector is the Interest Rate Spread (IRS), which is the difference between the interest rates paid by financial institutions on savings or time deposits with the higher interest rates charged on loans (Kashem & Rahman, 2017). The bank will ask for a positive difference in interest or fees as the price of providing services (savings and/or loans) (da Silva & Pirtouscheg, 2015). IRS is an important element of financial stability & shows performance (Hainz et al., 2014), efficiency (Bech & Hesse, 2009) and banking market size (Agapova & McNulty, 2016). IRS supports the utilization of liberalization and the profound of financial sector because liberalization increases competition and efficiency in the financial sector. Thus, a high margin or deposit-loan interest rate spread can be an indication of banking sector inefficiency or a reflection of the level of financial development (Were & Wambua, 2014) and lead to higher capital costs for borrowers and lending, consequently reducing investment or only promoting short-term high-risk ventures (Afzal & Mirza, 2012). Analyzing the IRS has been popular with researchers. Some academics use spreads as an indicator of future economic performance (Joseph et al, 2011; Berument et al., 2004).

Monetary policy has a mixed impact on money markets and retail bank interest rates. Highly sensitive long-term money market and short-term deposit rates are characterized by low markups and complete pass-through. Conversely, lending rates have higher markups and lower pass-through rates (Aryani, 2023). Monetary policy transmission in Indonesia has various influences on the real interest rate of the bank industry, Wibowo & Lazuardi (2017) examines the impact of monetary policy transmission of the benchmark interest rate policy on the interest rate pass-through of the banking industry in Indonesia, in ideal conditions, interest rate take long time adjustments on some lending and deposit rates for several bank industry products. Meanwhile, from the money supply, the "Liquidity Effect" of Keyness on the transmission of monetary policy is based on assumption that the demand for money is negative related to the nominal interest rate. Other things being equal, an exogenous increase in the money supply depresses nominal and real interest rates, and stimulating aggregate demand (Thornton, 1988; Carr & Smith, 1972). Changes in interest rates can occur due to changes in the money supply which reflect the interaction between the demand and supply side. The market equilibrium interest rate, namely the interest rate that reflects the compatibility between deposit rates (money supply side) and loan interest rates (money demand side) (Solikin, 2002), similarly supported by the Fisher Effect hypothesis that money supply causes simultaneous changes to interest rates and inflation (Utama et al, 2017).

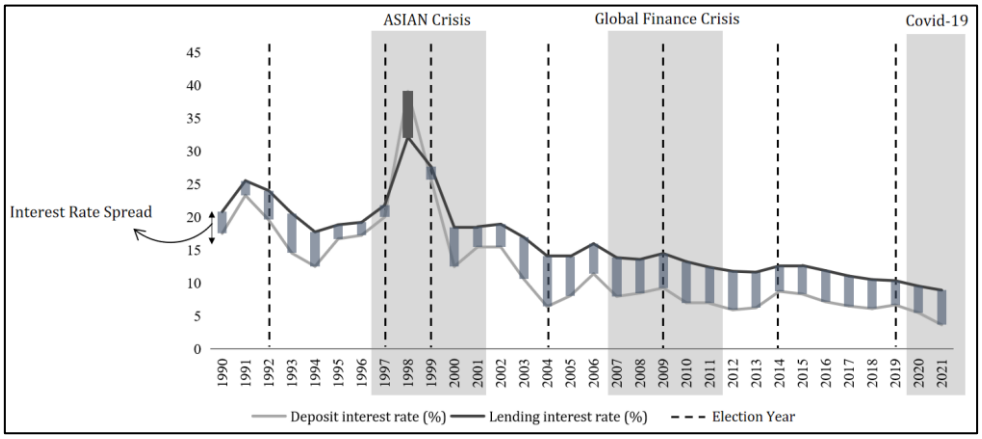

Figure 1. Interest Rate Spread in Indonesia on 1990 to 2021

Macroeconomic conditions can affect interest rates and banking profitability. First, fundamental theory as New Keynesian view of the macroeconomy on aggregate supply and demand, shocks and output growth trends will affect changes in natural interest rates (IMF, 2023), all major economic schools of thought, classic, neoclassic, monetarist, 'neo-Wicksellian', Austrian and post-Kenesian claims the rates and economic growth have an inverse correlation and vice versa (Lee & Werner, 2018). The second as the business cycle, macroeconomic conditions describe the business cycle conditions and causes banks to carry out the intermediary function for the real sector, the business cycle conditions determine the aggregate health of the real sector. When economic conditions worsen during periods of stagnation and recession, intermediation risks tend to increase and affect bank profitability (Bohachova, 2008; Gizycki, 2001).

Several analyzes related to IRS such as Were & Wambua (2014) analyze IRS in Kenya which is influenced by bank size, credit risk as measured by the ratio of non-performing loan to total loans, return on average assets and operational costs which have a positive effect. On the other hand, a higher bank liquidity ratio has a negative effect on the IRS. On average, large banks have higher spreads than small banks. The impact of macroeconomic factors such as real economic growth has no significant effect. The effect of monetary policy interest rates is positive but not too significant. da Silva & Pirtouscheg (2015) analyzed macroeconomic and microeconomic factors (Loans operations, Basic Interest rate, Individual default rate, bank net profit and GDP) for the 25 largest banks with the period of March 2009 to March 2013 against IRS in Brazil with the Generalized Method of Moments (GMM), the finding concludes macroeconomic and microeconomic factors are able to influence the level of ba-nking spread, where GDP and individual default have a negative effect. Hainz et al (2014) show that banking characteristics and macroeconomic variables are more important for setting spreads for small corporate loans and mortgages than for large corporate loans and consumer loans. Interest rate risk determines the spread for all loan categories. The global financial crisis has increased the response of spreads to interest rate risk and liquidity risk.

Moraes et al (2020) analyzed the impact of financial inclusion on the IRS, panel data on 68 countries during the period 2006 to 2015, the results show the banking interest rate spread is lower in countries with greater access to finance. However, this effect decreases, indicates a limiting effect on the dispersion. Kwark (2002) shows that banking characteristics and macroeconomic variables are more important for setting spreads for small corporate loans and mortgages than for large corporate loans and consumer loans. Interest rate risk determines the spread for all loan categories. The global financial crisis has increased the response of spreads to interest rate risk and liquidity risk. Anjom (2021) finds that credit risk, operational costs, and liquidity risk have a positive impact on the IRS. Asset size and GDP have a positive and negative relationship depending on the circumstances. Conversely, net interest income, capital sufficiency, return on assets, and market share have a negative relationship. Obeng & Sakyi (2016) analyzed the IRS estimation in Ghana and shows the exchange rate volatility, fiscal deficits, economic growth, and public sector borrowing from commercial banks, increase the interest rate spread in Ghana in both the long and short term.

Several studies point to the impact of macroeconomic variables and monetary policy on changes of movement of interest rates, such as Lee & Werner (2018) Examining the relationship between 3-month and 10-year benchmark

interest rates and nominal GDP growth over half a century in the U.S., U.K., Germany and Japan, and they found that interest rates track GDP growth and are consistently positively correlated with growth. Urban-ovský (2016) examines the relationship between GDP-interest rate in the Chech Republic using the vector autoregression approach and shows that real GDP past Granger-causing changes in interest rates and the forecasting process between GDP-interest rates has high accuracy. Thornton (1988) examines three variables of The Fed monetary policy: Ml, Adjusted Monetary Base (MB), and Nonborrowed Reserves (NBR) to changes in interest rates with OLS method, the results show the MB & NBR have a negative and significant effect.

IRS in developing countries shows significant time volatility (Kim & Stock, 2020; De Ferra & Mallucci, 2022) and higher spread (Tarus & Manyala, 2018). IRS in Indonesia has experienced an increase between 2019 - 2021, this is reflected because it is influenced by increased bank reserves in line with credit risk which was still relatively high during the pre-pandemic period, and during the pandemic, which was due to maintaining the value of Return on Assets (ROA) (Bank Indonesia, 2021). The increase in economic activity and social mobility after the COVID-19 pandemic has increased perceptions of risk in the banking industry, thereby driving down new lending rates. However, the reduction in lending rates which was much lower than deposit rates has increased the interest rate spread and net interest margin (NIM) in the banking industry (Bank Indonesia, 2022). The interaction between the financial system and macroeconomic variables is important, as the global financial crisis 2007/08, there was a loop feedback between financial markets and macroeconomics. Meanwhile, the 1997/98 Asian financial crisis had a broad impact on the financial system in Indonesia (Harun & Gunadi, 2022).

Based on the arguments built above, this research leads to: first, that money growth and inflation in determining the IRS, money growth creates inflationary pressure. This increases the risk of requiring a higher interest rate spread to reduce bank losses (Obeng & Skawi, 2016; Hainz et al., 2014). Second, macroeconomic conditions lead to changes in the business cycle, market shock and financial market risk, will affect the demand for credit, risk, profitability and lead to changes in interest rates (Golbabaei & Botshekan, 2022). Third, Gross Saving describes the costs borne by banks as bank-specific variables, the price of loans and the cost of funds is an important measure for balancing the interest income (Anjom, 2021), the public and government debt is seen as an indicator of default risk rather than operating to issue other sources of borrowing (Bosworth, 2016), and affects the costs borne by companies and the government, thet imply to influence interest rates policy (Sundarajan, 1985). The last, changes in conditions over-time are useful for observing changes in economic and risk (Özdemir & Schmidbauer, 2014), and strengthening for econometric analysis (Dufour, 1980).

This study will examine the IRS in Indonesia using an annual time series data approach from 1990 - 2021. The variables used are monetary instruments, bank specific variabel, macroeconomic condition, and event structural changes variable (event of Asian Crisis, Global Financial Crisis, COVID-19 and Election Year). The purpose of this study is to observe the condition of the IRS in Indonesia which is influenced by related variables and to observe the impact of the event structural changes with a *dummy* variable analysis approach on changes over time. Other results observed are the long-term and short-term effects. This paper proceeds as follows, section 1, introduction and literature review; Section 2, we detail the data, model and methodology; Section 3 interprets the results

and discussion; and Section 4 conclude from the study.

METHOD

This study will use annual data from 1990 to 2021. The selection of variables to explain the effect on the difference in interest rates on loans and deposits/IRS (SPREAD) is categorized into 3 Variable categories: (i) Monetary Instruments and bank specific variable, namely the dependent variable the money supply (M2), Total Debt (DEBT) (Obeng & Sakyi, 2015; Doojav, 2017; Tarus & Manyala, 2018; Bosworth, 2016), and Domestic Savings (SAVING) (Byrne et al, 2012); (ii) Macroeconomic conditions, namely GDP per-capita (GDP); Trade Openness (TRADE); and inflation (INF), referring to several combinations of research by Teodoru (2020); Were & Wambua (2014); Anjom (2021); Mujeri & Younus (2009); Tennant & Folawewo (2009); Antwi et al (2002); Ahmed & Khan (2022); Khan & Jalil (2023). (iii) In addition, several event structure that describe economic conditions in Indonesia as the year of COVID-19 (COVID), the 2008 Global Financial Crisis (GLOBAL), the Indonesia and Asian Financial and Monetary Crisis (ASIAN) and the Indonesia Election Year (ELECTION). The years of the Asian Crisis that impacted Indonesia start from 1997 and end 2001, and the Global Financial Crisis started from 2007 to 2011 (Laeven & Valencia, 2008; Laeven & Valencia, 2012). The year of the COVID-19 started in 2020, and the election years were 1992, 1997, 1999, 2004, 2009, 2014 and 2019. Measurement of several event variables using dummy measurements, where 1 is the year when the incident occurred and 0 otherwise. Description of data are shown in Table 1.

The ARDL analysis model is used to explore the relationship between monetary instruments and macroeconomic conditions, as well as several events that occurred during the research period. This approach makes it possible to know the impact of the variables in the short and long term. This study presents two models namely, main model and the model with dummy variables, as follows:

$$SPREAD = f(M2, DEBT, SAVING, GDP, TRADE, INF) \quad (1)$$

$$SPREAD = f(M2, DEBT, SAVING, GDP, TRADE, INF, COVID, or\ ASIAN, or\ GLOBAL\ Crisis, or\ ELECTION) \quad (2)$$

The ARDL model proposed by Pesaran et al. (2001) used a linear transformation to integrate short-run adjustments into long-run equilibrium, using an *Error Correction Model* (ECM). Based on the equation above, the *error correction* representation used to analyze long-run and short-run dynamic events in this study:

Main Model:

$$\begin{aligned}\Delta SPREAD_t &= \beta_0 + \beta_1 SPREAD_{t-1} + \beta_2 LnM2_{t-1} \\ &+\beta_3 LnDEBT_{t-1} + \beta_4 LnSAVING_{t-1} + \beta_5 LnGDP_{t-1} \\ &+\beta_6 LnTRADE_{t-1} + \beta_7 INF_{t-1} + \sum_{i=1}^{n} \theta_1 \Delta SPREAD_{t-1} \\ &+ \sum_{i=1}^{n} \theta_2 \Delta LnM2_{t-1} + \sum_{i=1}^{n} \theta_3 \Delta LnDEBT_{t-1} \\ &+ \sum_{i=1}^{n} \theta_4 \Delta LnSAVING_{t-1} + \sum_{i=1}^{n} \theta_5 \Delta LnGDP_{t-1} \\ &+ \sum_{i=1}^{n} \theta_6 \Delta LnTRADE_{t-1} + \sum_{i=1}^{n} \theta_7 \Delta INF_{t-1} + \varepsilon_t \end{aligned} \quad (3)$$

Model with Dummy Variable

$$\begin{aligned}\Delta SPREAD_t &= \beta_0 + \beta_1 SPREAD_{t-1} + \beta_2 LnM2_{t-1} \\ &+\beta_3 LnDEBT_{t-1} + \beta_4 LnSAVING_{t-1} + \beta_5 LnGDP_{t-1} \\ &+\beta_6 LnTRADE_{t-1} + \beta_7 INF_{t-1} + \beta_8 DUMMY_{t-1} \\ &+ \sum_{i=1}^{n} \theta_1 \Delta SPREAD_{t-1} + \sum_{i=1}^{n} \theta_2 \Delta LnM2_{t-1} + \\ &+ \sum_{i=1}^{n} \theta_3 \Delta LnDEBT_{t-1} + \sum_{i=1}^{n} \theta_4 \Delta LnSAVING_{t-1} \\ &+ \sum_{i=1}^{n} \theta_5 \Delta LnGDP_{t-1} + \sum_{i=1}^{n} \theta_6 \Delta LnTRADE_{t-1} \\ &+ \sum_{i=1}^{n} \theta_7 \Delta INF_{t-1} + \sum_{i=1}^{n} \theta_8 \Delta DUMMY_{t-1} + \varepsilon_t \end{aligned} \quad (4)$$

In this case, β reflects the variance in the long-run variables and θ reflects the variance in the short-run variables and the ECT coefficients are added to explore the short-run relationship indicating the speed of adjustment of the variables towards long-run convergence. The null hypothesis [Ho: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$] is opposite to the alternative hypothesis [H1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8$] that the variables in this analysis are interrelated relate in the long run.

This study also provides diagnostic tests to determine the robustness of the model, such as the serial correlation test with the LM Test, and the heteroscedasticity test using the BPG and White methods, normality test, all of which are included in this study. The tests used in this study included the CUSUM and CUSUMSQ stability tests.

Table 1. Description and Type of Data

Variable	Remark	Value	Source
SPREAD	The difference between credit and deposit interest	%	WDI
M2	The amount of money in circulation (LCU)	Natural logarithm	Bank Indonesia
DEBT	Short-term external debt	Natural logarithm	WDI
SAVING	Net gross domestic savings	Natural logarithm	WDI
GDP	GDP/Capita	Natural logarithm	WDI
TRADE	$\frac{Export + Import}{GDP}$	%	WDI
INF	Inflation, consumer prices (annual %)	%	WDI
COVID GLOBAL CRISIS ASIAN CRISIS ELECTION	Dummy 1 is year of occurrence and 0 otherwise	dummy	

Table 2. Statistical Description

	SPREAD	LnM2	LnDEBT	LnSAVING	LnGDP	TRADE	INF
Mean	4.160727	13.9639	23.98002	25.43276	17.03179	53.06683	8.780968
Median	4.561667	14.06977	23.85939	25.23134	16.95789	52.5783	6.409538
Maximum	7.680833	15.87863	24.60724	26.75783	17.51968	96.18619	58.45104
Minimum	-6.9125	11.34604	23.1232	23.95474	16.55512	32.9756	1.56013
Std. Dev.	2.504178	1.369312	0.464744	0.946944	0.299192	12.02391	9.831812
Skewness	-2.73524	-0.417053	-0.137215	0.00026	0.263027	1.330784	4.222754
Kurtosis	13.04281	2.026141	1.844529	1.476538	1.762054	6.451602	21.79617

Table 3. Result of Stationary Test at level and first difference

Unit Root Test	ADF		PP		KPSS		Conclution
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	
SPREAD	-3.408485**	-6.526733***	-3.342188**	-7.302589***	0.250496	0.06285	I(0)
LnM2	-3.393821**	-3.558973**	-3.017059**	-3.694395***	0.738469**	0.393823*	I(0)
LnDEBT	-1.643287	-4.816274***	-1.673148	-4.785158***	0.523559**	0.076179	I(1)
LnSAVING	-0.775214	-4.758771***	-0.803817	-4.880023***	0.693815**	0.074642	I(1)
LnGDP	-0.272763	-4.144439***	-0.272763	-4.089349***	0.730182**	0.104373	I(1)
TRADE	-2.562654	-5.542959***	-2.527792	-8.463116***	0.467342**	0.074838	I(1)
INF	-4.303161***	-2.646927*	-4.313527***	-20.80826***	0.418847*	0.500000**	I(0)

*Note: ***,** and * indicates rejection of the null hypothesis at the significance level of 1%, 5%, and 10%*

Table 4. Result of the long-term and short-term estimation (Dependent Variable is SPREAD)

	Main Model	Global Crisis	Asian Crisis	COVID-19	Election Year
Long-run					
LnM2	1.693 ***	1.691 ***	1.880 ***	1.694 ***	1.684 ***
LnDEBT	-1.379	-1.388	-0.506	-1.378	-1.420
LnSAVING	2.199 **	2.208 **	1.331	2.203 **	2.263 **
LnGDP	-13.287 ***	-13.284 ***	-12.437 ***	-13.306 **	-13.360 ***
TRADE	-0.022	-0.022	0.018	-0.022	-0.022
INF	-0.201 ***	-0.201 ***	-0.220 ***	-0.201 ***	-0.200 ***
Global Crisis		-0.052			
Asean Crisis			-1.617 *		
Covid-19				0.013	
Election					0.114
Constanta	186.890 ***	186.828 ***	169.251 ***	187.069 ***	187.583 ***
Short-run					
ΔLnM2	-0.589	-0.538	0.293	-1.415	-0.654
ΔLnDEBT	-0.935	-0.878	-0.762	-0.663	-0.932
ΔLnSAVING	3.110 **	3.038 **	3.070 **	3.215 **	3.066 *
ΔLnGDP	-20.858 **	-21.103 **	-22.219 **	-24.680 **	-20.540 **
ΔTRADE	0.004	0.001	0.019	0.001	0.005
ΔINF	-0.204 ***	-0.204 ***	-0.215 ***	-0.202 ***	-0.205 ***
ΔGlobal Crisis		0.356			
ΔAsean Crisis			-0.710		
ΔCovid-19				-0.957	
ΔElection					0.022
ect_{t-1}	-0.585 **	-0.577 **	-0.710 ***	-0.546 **	-0.588 **
Diagnostic and reliability tests					
Prob F-Stat	0.000	0.000	0.000	0.000	0.000
R2	0.860	0.860	0.878	0.860	0.860
Adj R2	0.826	0.819	0.843	0.819	0.819
DW	1.231	1.235	1.350	1.231	1.250
Bound Test	3.414 **	2.902 **	2.919 **	2.884 **	3.065 **
Breusch-Godfrey LM test for autocorrelation	4.386 **	4.205 *	2.756	4.299 **	4.006 **
BPG test for heteroskedasticity	1.339	1.123	2.328 *	1.113	1.299
Normality test (J-B)	4.211	4.187	2.715	4.205	3.720
Ramsey RESET test	0.103	0.098	0.138	0.102	0.101
CUSUM	S	S	S	S	S
CUSUMQ	S	S	S	S	S

*Note: *, ** and *** represents significance at 10%, 5% and 1% level respectively. ect_{t-1} is the one period lagged cointegrating error term. For Bound Test, the F-statistics for co-integration analysis based on the selected ARDL models, *, **, *** are above the upper bound with a significance level of 10%, 5% and 1%. RESET is Ramsey model specification test to check model stability; LM is Lagrange Multiplier test for serial correlation; JB is Jarque-Bera normality test; BPG (The Breusch Pagan test) is Heteroscedasticity test; *, **, *** is the parenthesis are p-values significat at 10%, 5% and 1%. CUSUM & CUSUMQ tests for parameter stability with a significance level at 5% than S is stable and U is unstable.*

RESULTS AND DISCUSSION

Prior to estimate and testing the ARDL bound test, a unit root test is performed to evaluate the order of integration in the series. The time series analysis procedure begins by providing a statistical/ unit root analysis of each variable used in the study. Pre-conditions for using the ARDL method that each variable may not be integrated from order 2, or optionally additional that all variables are not integrated at I(0). The unit root testing procedure uses three methods, namely Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS). The test results are shown in Table 3. Based on the ADF, PP and KPSS it was concluded that the SPREAD, M2 and INF variables had been integrated at level I(0); while the variables SAVING, DEBT, GDP and TRADE are integrated at level I(1). Thus, we conclude that the mixed stationarity model satisfies the requirements of the bound test, also known as ARDL estimation. Table 2. shows a statistical description.

Table 4. presents long-term and short-term ARDL estimation, and disgnostic test result. The main model shows that the variables M2, SAVING, GDP & INF have a long-term effect on changes in the SPRED variable. However, in the short term, only the variables of SAVING, GDP & INF respond to changes in the IRS. The diagnostic test shows that the research model in the BG-LM test shows no correlation at 10% and the results of the Harvey & BPG test show that there is no heteroscedasticity problem, the Jarque-Bera and Ramsey RESET tests for specification and normality of the model show that the main model shows the normal model. An accurate model (bound test) due to it is at a significance level of 5% means it has the conclusion that SPREAD responds to changes in the independent variables. The stability of the model with CUSUM & CUSUMQ shows that the all model is below the 5% line.

The variables GDP and INF have a negative effect, The INF variable has a negative effect with a coefficient in average for all models of -0.204 meaning that every 1% change in inflation will affect a 0.204% change in IRS decline, In line with Hainz et al. (2014) and Tarus & Manya-la (2018) but contrast-hypothesis against Tenn-ant & Folawewo (2009); Azumah et al. al (2023), Khan & Jalil (2023); Teodoru (2020) and Aboagye et al (2008), and explained the increase in changes of prices over-time is a measure of bank in determining their interest rates, according to Crowley (2007), higher inflation expected to cause a higher inflation adjustment spread and forces banks to charge a risk premium.

The GDP has coefficient in average -13.134 that's mean every additional 13 percent of GDP growth will reduce the IRS by 1 percent. This finding is confirms the findings of Teodoru (20 20) and Kunt & Huizinga (1999), mixed conclusions from Tarus & Manyala (2015) and contra to Obeng & Sakyi (2016), Jefferis et al. (2020); Akinlo & Owoyemi (2012) & Azumah et al. al (2023). Increases in economic activity and GDP will respond to changes in interest rates, demand for loans will increase when the economy is improving and banks will encourage larger loans and respond to changes in borrowing cos-ts, however, the cost of borrowing risk may be higher.

The positive response occurred in the variables M2 and SAVING, SAVING has a coefficient of 2.04 and indicates that a change in gross saving of 1% will respond to an increase in IRS of 2.04%, and in line with the findings of Khan & Jalil (2023). In conditions of increasing household or national savings, will decrease loan rates, temporarily increasing cash flows due to reduced interest payments will increase loan expenditures.

The M2 variables has an average coefficient in each model of 1.72 and explains that a 1% change in M2 will respond to an increase in IRS of 1.72%, confirming the findings of Khan & Jalil (2023) and contrasting Tarus & Manyala (2015)

and Obeng & Sakyi (2016). However, the response to the results of the analysis, M2 is only in the long term and does not occur in the short term. The increase of broad money supply raises the availability of savings at banks, so that banks need to channel more loans with higher interest charges and have consequences for bank profitability. This finding may be different from the inflation hypothesis, but in line with modern macroeconomic models by New Keynessian. According to Berry et al. (2007), the response to monetary policy leads to changes in interest rates rather regulating the money supply. In practice, household and corporate lending decisions depend on the retail interest rates they face, rather than the policy rate. And there are a variety of different loan products with interest rates set by the banking industry which the loan rate price rather than balance it with the official interest rate.

In the short term, the *ect* value has a significant probability value of 0.05, meaning that there is a short-term relationship that able to be observed. In the short term, only the GDP, SAVING and INF variables respond to changes and suggest that short-term adjustments to research variables for changes in interest rates and spreads, SAVING has a positive effect (θ = 3.09), while the GDP (θ = -21,8) and INF (θ = -0.20) has a negative effect, as the respons in the long term, but variable M2 has no effect in short-term, this is different from the findings of Mbowe et al (2020) that inflation and Obeng & Sakyi (2016) for GDP have positif impact. These findings indicate that the variable response is consistent in the long and short term for Inflation, GDP and Gross Savings.

The Dummy Variables, only the ASIAN Crisis variable has an influence on cha-nges in the IRS with a negative coefficient of -1.61 and has no effect in the short term. During the ASIAN Crisis it more hard impacted the Indonesian financial system, the fall in the rupiah caused an increase in the burden of foreign loans, because the depreciation of the currency caused the increase in domestic interest rates. increased stress on the companies have magnified investment uncertainty, thereby increasing pressure on exchange rates and domestic interest rates (IMF, 1998). In different to 2007/08 Global Crisis, Indonesia's monetary and fiscal policy responses were considered better. Economic growth tended to be positive during the Global Crisis and only declined in the last quarter of 2009 (Tambunan, 2010). The event of COVID, GLOBAL Crisis and ELECTION Year in Indonesia have the same results with no effect both in the long and short term. It may only be affected by conditions of domestic financial and monetary turmoil, but not influenced by political conditions and the structure of the global economy. Our indications point to the power of the IRS at the time of study observation with the strength of the dependent variable on economic turmoil and futures risk structure, and as the effectiveness of monetary and finance-bank landing policy in times of global economic turmoil and respons on COVID-19.

CONCLUSION

Several studies point to the IRS in developing countries tends to be high and more volatile. This study examines the IRS in Indonesia which is influenced by monetary instrument variables, macroeconomic condition, and futures risk structure. The analytical method used is ARDL with data observations from 1990 - 2021. The purpose of this study is to determine the strength of the IRS on economic conditions in Indonesia. By understanding the IRS variable provides an overview of banking market strengtth and the factors that influence it.

The results show that in the long-run, GDP and inflation have a negative effect on the IRS variable, while the broad of money and total saving variable has a positive effect. In the short

term, the total saving, inflation and GDP has a consistent estimate of a positif and negative relationship in both the long and short term during the observation period. In the analysis of event structural variables, Only the Asian crisis affected the IRS, the impact of the monetary crisis through the depreciation of the rupiah, hyper inflation and a decline in economic activity, resulting in a sharp increase in deposit interest to avoid rush money. COVID-19 cases, the global financial crisis and elections year have no influence on the IRS, this identifies the strength of the variable to the Global Term Risk condition. Policy implications and recommendations, namely reducing the IRS can be performed with monetary policy interventions such as tightening interest rates, both the prime lending rate and deposit interest rates; regulation of the minimum mandatory ratio and regulating the circulate of money.

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