



UDC: 336.77:336.711(5)  
DOI: 10.2478/jcbtp-2024-0030

*Journal of Central Banking Theory and Practice*, 2024, 3, pp. 271-289  
Received: 27 February 2023; accepted: 11 July 2023

**Saeed Sazzad Jeris** \*, **Omar Bari Md. Ibrahim** \*\*,  
**Ferdous Ahmed Chowdhury** \*\*\*,  
**Humaira Begum** \*\*\*\*

\* *Shahjalal University of Science & Technology, Sylhet, Bangladesh*

E-mail:  
saeedjeris30@gmail.com

\*\* *University of Windsor, Windsor, Ontario, Canada*

E-mail:  
bariomar2015@gmail.com

\*\*\* *Fairleigh Dickinson University, Vancouver, British Columbia, Canada*

E-mail:  
ferdousahmedchy.95@gmail.com

\*\*\*\* *Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh*

E-mail:  
humaira.begum@hstu.ac.bd

## Transparency in Central Bank and Credit Expansion: Empirical Evidence from Asian Countries

**Abstract:** This research investigated the influence of central bank transparency on credit expansion in 15 Asian nations (both advanced and emerging) during the period from 2000 to 2019. Panel OLS and Dynamic GMM estimation are used to identify the impact of central bank transparency on the credit spread. The findings indicate that central bank transparency plays a crucial role in lowering credit spreads and facilitating credit expansion. In addition, the influence of central bank transparency on credit spreads has a greater effect in emerging economies than in developed economies, highlighting the significance of transparency for tackling information asymmetry within the credit system. Overall, the research highlights the significance of central bank independence in reducing knowledge disparities and promoting a more transparent credit environment.

**Keywords:** Central bank transparency, credit spread, Asia, GMM, OLS.

**JEL Classification:** E51, E52, E58.

### 1. Introduction

Over the past few decades, central banks all over the world have become more aware of how important it is for their operations to be transparent (Trabelsi, 2022). This helps them be more trustworthy and accountable, and it makes their policies function better (Johnson, Arel-Bundock & Portniaguine, 2019). Credit

expansion is one area where greater transparency may have significant implications (Pelizzon, Subrahmanyam, Tomio & Uno, 2016). The availability and cost of credit in the economy are significantly influenced by the credit spread, which is the difference between the interest rate on risk-free assets and the cost of borrowing for businesses and people. Credit spread changes may have a big impact on the economy, impacting investment, consumption, and employment (Liao, 2020).

For alleviating the problems of asymmetric knowledge present in the credit system, the capacity of central banks to match the aspirations of economic agents is considered as a vital instrument (Tiberto, De Moraes & Corrêa, 2020). The absence of asymmetric knowledge regarding economic management and other financial intermediaries is referred to as central bank transparency (Geraats 2002). More clarity in central bank communication, gained by delivering appropriate information on different aspects of their actions, can reduce informational asymmetries between market participants. In the credit market, asymmetry of information may cause significant inadequacies and can encourage banks to increase their risk tolerance, which has directly influenced the credit spread (Jappelli and Pagano, 2000; Ordóñez, 2012; Tiberto et al., 2020). As it is known that a stable financial system can conduct financial intermediation on an ongoing basis, high credit spreads might influence financial stability (Schinasi, 2004, Woodford, 2010).

Over the years, scholars from all over the world have shown a great deal of interest in exploring the significance of central bank transparency on various aspects. The level to which a central bank provides information on its judgment procedures, policy choices and goals, policy implementation, and control indicators relevant to the economic conditions is referred to as transparency in central banks (Yıldırım -Karaman, 2017). In recent years, central banks have gradually embraced a more transparent approach to policymaking, which includes greater openness in their legislative frameworks and thorough justifications for their decisions (Rhee & Turdaliev, 2013). Information asymmetry and the risk of financial instability have long been obstacles in traditional financial markets. Nevertheless, the transparency of central banks has the capacity to mitigate these issues by reducing current asymmetries in market information and minimizing credit market information challenges, thereby resulting in lower credit spreads and a more beneficial credit environment (Geraats, 2002; Blinder, Ehrmann, Fratzscher, De Haan, & Jansen, 2008; Knütter, Mohr & Wagner, 2011).

Studies in the existing literature mainly focused on examining the implications of openness by central banks on stock prices (Kurov, 2012; Förch and Sunde,

2012; Papadamou, Sidiropoulos & Spyromitros, 2014, 2017) and macroeconomic performance (Kuttner and Posen, 2001; as in references Cecchetti and Krause, 2002; Fatum and Scholnick, 2008; Cukierman, 2008, Alpanda and Honig, 2009; Bouakez and Normandin, 2010; Klomp and de Haan, 2010; Arnone and Romelli, 2013; Eichler, Littke & Tonzer, 2017; Weber, 2019). The influence of central bank transparency on credit expansion has not received much attention. However, among the previous studies, majority of them have captured the various degrees of transparency of central banks in monetary policy (Dincer & Eichengreen, 2014; Eijffinger & Geraats, 2006). Since the global financial crisis, there has been a lot of research about how transparent central banks are. For example, Cihak et al. (2012) and Horváth and Vasko (2016) made indicators that can measure transparency not only in monetary policy but also for maintaining banks solvency.

This research is one of the first attempts to examine whether transparency at the central bank influences credit spreads across 15 Asian economies (both advanced and emerging) between the years 2000 and 2019, encompassing both advanced and developing countries. To measure central bank transparency, the data on monetary policy transparency introduced by Dincer, Eichengreen & Geraats (2022) was employed in this study. Other macroeconomic and control variables that may influence credit expansion are also considered in this study. This study applied the generalised method of moments (GMM) estimation method to investigate the association between central bank transparency and credit spreads.

The findings of this study have several contributions. First, this research is one of the first attempts to capture the role of central bank transparency on credit spread. By offering a more comprehensive analysis of this association, this study aims to bring new insights into the mechanisms that underpin financial stability. Applying rigorous econometric methods such as GMM enabled to incorporate issues of endogeneity and other potential sources of bias, resulting in more accurate and reliable estimates of the effect of central bank transparency on credit spreads. Second, this study considered the Asian economies which was unexplored in the previous studies despite the importance of Asian economies in world economy. As Asia continues to rise in importance as an important ingredient to the global economy, it is vital to comprehend the role of central bank transparency in fostering financial stability and economic development in this region. Third, by integrating both developed and developing nations in the analysis, this study can shed light on how well central bank transparency works in various country types. This will make it possible to clarify all the different factors that influence credit spreads in various economic environments and to reach more comprehensive conclusions on the link between transparency and financial stability. Fourth, the policy implications raised by the findings of the study are

important for various stakeholders, such as governments, central banks, policymakers, regulators, academicians, financial institutions, and others. From the planning phase to the implementation phase, it is very important to understand the actual scenario first, with its causes and consequences.

The rest of the article is organised as follows: Section 2 depicts literature review regarding the association between central bank transparency and credit spreads. The data and variables utilised in this study are described in section 3, including the indicators of central bank transparency, credit spreads, and other macroeconomic and banking factors that may impact credit spreads. Section 4 depicts the methodology this research used to analyse the data. Section 5 presents the findings of our research, including the discussions and key insights. Concluding remarks and policy implications are discussed in section 6. Finally, in section 7, the limitations of the study and potential future research avenues are discussed.

## 2. Literature Review

In recent years, the relationship between central bank transparency and financial market outcomes has been the subject of extensive discussion and empirical investigation. Financial stability and economic growth, as well as the accountability and legitimacy of monetary policy decision-making, are believed to be largely dependent on central bank transparency. This section will present findings from previous studies related to the effect of central bank transparency on credit spreads.

Asymmetry of knowledge is a common bank lending concern that allows banks to increase their risk tolerance, affecting the credit system (Jappelli and Pagano, 2000; Ordonez, 2013). Ordonez (2013) finds an important finding that asymmetry is stronger in nations with less developed financial systems and greater financial frictions. Tiberto et al. (2020) also found that both monetary policy transparency and central bank transparency are more pertinent in emerging countries than advanced economies due to the lack of availability of information in emerging countries. Geraats (2002), Blinder et al. (2008), Knütter et al. (2011), and Born, Ehrmann & Fratzscher et al. (2012) noted that the asymmetry of information on the financial market can be removed if transparency in central bank communication exists. Accountability by central banks will also improve the condition of financial services in the financial system, which consequently causes banking institutions to decrease their expansion of credit. In this sense, credibility in central banks serves as an important technique to strengthen the determination of central banks to implement their policy goals by suppressing discrepancies in

information between regulators and market participants. According to Geraats (2002), openness is a feature of the quality of material, not just its dissemination. In an earlier study, Ho and Saunders (1981) suggested that implementing a proper interest rate on deposits and lendings can help maximise profit, which would reduce the credit spread for the central bank.

Transparency in monetary policy can provide the central bank with more independence. Geraats (2014) points out that monetary policy can play a key role in increasing the scope for central bank independence and greater openness. Knüster et al. (2011) found that information differences and unreliability persuaded central banks to adopt monetary policy as an instrument to reduce credit spread by considering 35 central banks from different countries. Proper maintenance of monetary policy can improve the resilience of the central bank credit spread. Moreover, a stable framework can make a bank more capable of performing monetary intermediation effectively (Schinasi, 2004; Woodford, 2010).

There have even been several studies that have looked at the role of central bank transparency on financial indicators, including credit dispersion and bank performance (Barth, Lin, Ma, Seade & Song, 2013; Honohan and Beck, 2007; Birchwood, Brei & Noel, 2017). Powel (2018) highlighted that financial stability can be ensured by taking measures such as increasing transparency in the financial system, enhancing monitoring of financial institutions such as banks. Montes and Nicolay (2017) used quantile regression analysis to look at the link between how often the central bank communicates and how well monetary policy is carried out. They found that clear communication from the central bank can have a positive effect on the credibility of banks. Andrieş, Nistor & Sprincean (2020) looked at the effect of central bank openness on shadow banking by looking at 34 banks from Central and Eastern Europe from 2005 to 2012 and found a strong correlation between central bank openness and financial organisations' commitment to application. In an atmosphere with greater specificity in the case of financial sustainability, the perception of aggregate risk by banks is lowered. Credit spread is a form of preventing banks from increasing credit flow complexity; lower perceptions of risk may be directly converted to credit expansion (Tiberto et al. 2020).

Despite the growing significance of investigating the influence of central bank transparency on credit spreads, there is a noticeable gap in the existing studies. Very few research has specifically considered exploring this association, and those that have often lack a comprehensive conclusion and analysis using the latest data and information. As a result, there is a need for more studies that offer robust evidence to capture the dynamics between central bank transparency and credit spreads. Another important limitation in the literature is the lack

of concentration given to the Asian economies. Although Asia is contributing significantly to the global economy, existing studies have largely overlooked the role of central bank transparency on credit spreads in this part of the world. In addition, the existing literature tends to concentrate disproportionately on developed economies while ignoring emerging economies. This disparity is significant given that emerging economies frequently encounter unique challenges and have distinct financial systems compared to developed nations. Consequently, it is essential to investigate the role of central bank transparency on credit spreads, particularly in emerging economies.

### 3. Data and Variables

#### 3.1. Data and Sample

To explore the role of central bank transparency on credit spreads, this research considers nations from the Asian region (six advanced countries and nine emerging countries) in the period from 2000 to 2019. The nations are selected based on the International Monetary Fund's (IMF) advanced and emerging countries list and the availability of the data.<sup>1</sup> Monetary policy transparency is considered a representative of central bank transparency, which was introduced by Dincer, Eichengreen & Geraats (2022). To explore the impact of central bank transparency on credit spread, the data on bank loan and deposit growth is extracted from international financial statistics.

#### 3.2. Variable Description

For capturing the role of credit risk on credit expansion, the proportion of non-performing loans to total loans is considered as control variable. With the aim of exploring the effect of the banking sector's share and efficient management, domestic private-sector credit to GDP and operating costs over total assets are also collected. Additionally, real interest rates and inflation are also considered as control variables. Table 1 outlines the summary of variables with notation and data sources.

---

<sup>1</sup> List of Advanced Countries: Australia, New Zealand, Japan, Hong Kong, South Korea, and Singapore.

List of Emerging Countries: Bangladesh, China, India, Indonesia, Malaysia, Mongolia, Philippines, Sri Lanka, and Thailand. Source: <https://www.imf.org/en/Publications/WEO/weo-database/2023/April/groups-and-aggregates>

*Bank loan and deposit growth:* Bank loan and deposit growth is considered a representative of the credit expansion of a country. Bank loan and deposit growth is the distinction between deposit rate and lending rate. The deposit interest rate is the rate offered by commercial banks on three-month deposits, while the lending rate is the rate stimulating by banks on loans to the private sector.

**Table 1: Variables used in this study**

Variables	Notation	Data source
<i>Dependent variable</i>		
Bank loan and deposit growth	BLD	International Financial Statistics
<i>Independent variables</i>		
Monetary policy transparency	MPT	Dincer, Eichengreen & Geraats (2022)
Non-performing loans over gross loans	NPL	World Bank
Operating costs over total assets	OC	Global Financial Development
Domestic credit to private sector over GDP	CRE	World Bank
Inflation	INF	World Bank
Real interest rate	RI	World Bank

*Monetary policy transparency:* Monetary policy transparency is one of the proxies of central bank transparency developed by Dincer, Eichengreen & Geraats (2022) by covering data from 2000 to 2019. This index considers 15 questions by considering sovereignty, economic transparency, bureaucratic confidentiality, legislative integrity, and institutional disclosure as examples of visibility. It is expected that monetary policy transparency can play a very big role in reducing the credit spread of a nation (Tiberto et al., 2020).

*Non-performing loans over gross loans:* Following Birchwood et al. (2017), non-performing loans over gross loans is used as a representative of credit vulnerability. An increase in this ratio is likely to cause an increase in credit expansion as banks are facing high credit risk, which normally causes institutions to raise loan interest rates to reimburse this loss. (Aydemir & Guloglu, 2017).

*Operating costs over total assets:* Operating expenses over total assets is another variable used as a measurement of operating expenses (Zhou and Wong, 2008). Generally, this ratio represents how efficient the management of banks is. In other ways, as Zhou and Wong argue, an uptick in the operational expenses to total assets ratio suggests ineffective capital adequacy, which can lead to increased credit growth.

*Domestic credit to private sector over GDP:* Domestic credit to the private sector to GDP is used in this article to see whether the scale of the banking sector's economic contribution has an impact on credit spread or not. De Moraes, Barroso & Nicolay (2018) find that an economy with a higher credit supply may be increased because of a decline in the premiums paid by banks.

*Inflation:* Following Ugur and Erkus (2010) and Birchwood et al. (2017), inflation is considered as control variable to explore its impact on credit expansion. The current value of investments can also be affected by inflation, and it also plays a significant role in creating insecurity in the economy and intelligence asymmetry between lenders and borrowers. As Ugur and Erkus argue, inflation may also influence deposit and loan rates, thus increasing the credit spread.

*Real interest rate:* The lending interest rate, taking inflation into account, is known as the real interest rate. The credit spread will be increased if the real interest rate rises, as higher bank loans may upgrade the banks' earnings (Akhter and Daly, 2009).

## 4. Methodology

### 4.1. Panel OLS

As the dataset of this study consists of panel data ranging from 2000 to 2019, a commonly established methodology panel OLS (Ordinary least squares) is applied as a base model. The proposed equation of panel least squares is following:

$$BLD_{i,t} = \beta_0 + \beta_1 CBT_{i,t} + \beta_2 CRE_{i,t} + \beta_3 NPL_{i,t} + \beta_4 OC_{i,t} + \beta_5 Z_{i,t} + \varepsilon_{i,t} \quad (i)$$

Where  $t$  = the time period and  $i$  = number of countries. BLD represents the dependent variable, bank loan deposit spread, applied as a representative for credit vulnerability. CBT denotes the central bank transparency variable where CRE represents domestic credit to the private sector. NPL and OC represent credit risk and operating costs over total assets.  $Z$  regards the control variables, real interest rate and inflation.

### 4.2. Dynamic Generalized Method of Moments (GMM)

As the lagged dependent variable is seen as an independent variable in a dynamic panel, it is possible to examine the impact of central bank openness on credit



flow in a simple system. The lagged dependent variable causes complex panel bias and uncertainty in OLS predictions (Baltagi, 2005). Generalized moments approaches (GMM), as proposed by Bond, Hoeffler & Temple (2001) are used in literature for this purpose. According to Roodman (2009), both difference and system GMM estimation method is appropriate for studies of 'small T, big N' tables, where predictors are not purely exogenous, and heteroscedasticity and autocorrelation occur across different batches. However, if the measurements have somewhat close unit root effects, strong measurement errors discrepancies can occur with difference GMM. For overcoming this problem, Bond (2002) refers to System GMM when calculating stochastic metrics with recurrent sequences, suggesting it has considerably lower finite sample bias and much more accurate results. Furthermore, the GMM scheme considers unobserved variability and the nature of the predictor variables. Sargan test (J test) proposed by Arellano (2003) is performed to ensure that the tools used in the regressions are accurate. Also, serial autocorrelation test (AR(1) and AR(2)) is also conducted and the result provide positive signal for estimations. To perform the analytical result, the preceding GMM equation is used:

$$BLD_{i,t} = \beta_0 + \beta_1 BLD_{i,t-1} + \beta_2 CBT_{i,t} + \beta_3 CRE_{i,t} + \beta_4 NPL_{i,t} + \beta_5 OC_{i,t} + \beta_6 Z_{i,t} + \varepsilon_{i,t} \quad (2)$$

Here  $BLD_{i,t-1}$  represents the lag value of dependent variable, bank lending-deposit spread.

## 5. Results and Discussions

This part presents empirical proof of the relationship between transparency of central banks and credit spread in Asia. First, descriptive statistics are estimated. After that, this section is split into two subsections. The first section evaluates the results from OLS and S-GMM to explore the role of central bank transparency on credit expansion by considering both emerging and advanced economies in Asia. In the second section, OLS and S-GMM models are re-estimated using only emerging nations in Asia. The reason behind this restriction is to find whether central bank transparency is relevant in minimizing credit dispersion in Asian emerging nations.

### 5.1. Descriptive Statistics

Table 2 highlights the descriptive statistics for the variables in the research. The variable monetary policy transparency (MPT) has a mean of 8.42. The indicator

exhibits a range of values from 1.00 to 13.50, reflecting variation in the degree of transparency across the sample. The bank loan deposit spread has an average score of 4.01 and ranges from 0.34 to 23.05, indicating variation in the sample. The average for Non-Performing Loans (NPL) is 4.52, but it also has variation across the sample (ranging from 0.30 to 50.00). The difference between the average and standard deviation of operating costs (OC) is not too far (2.02 and 1.65, respectively). In the case of macroeconomic control variables, inflation (INF) and the real interest rate (RI) have a mean value of 4.32 and 4.15, respectively.

**Table 2: Descriptive statistics**

	Mean	Median	Maximum	Minimum	Std. Dev.
MPT	8.42	7.00	13.50	1.00	2.97
BLD	4.01	3.45	23.05	0.34	3.21
CRE	81.16	103.10	233.21	5.25	54.55
NPL	4.52	2.44	50.00	0.30	6.58
OC	2.02	1.76	6.22	0.06	1.65
INF	4.32	3.17	27.96	-3.68	3.93
RI	4.15	3.96	27.40	-13.73	4.39

Source: Authors' estimation

## 5.2 The Impact of Central Banks Transparency (All Nations)

Table 3 represents the findings in relation to the impact of the credibility of central banks on credit expansion by considering all nations (both advanced and emerging). The result from the Sargan test (J statistic) recommends that the over-identification prohibitions are appropriate for all S-GMM regressions. Also, serial autocorrelation tests (AR (1) and AR (2)) imply that there is no serial autocorrelation in the models.

Regressions estimated by both OLS and S-GMM suggest that central bank transparency have a strong impact on credit spread in Asian economies. The negative coefficient for the models implies that central bank acts with greater accountability in Asia, a strong role in reducing the credit spread. When central banks are more open about how they work, market players see them as more accountable and trustworthy. Because of this, there is more trust and faith in the policies and decision-making processes of the central bank. This increased trustworthiness can make people think that there are less risks with credit, which can make credit gaps smaller. This credit market problem can be fixed by making sure that the financial system does not distort information and that monetary policy is clear.

This not only helps policymakers make important decisions, but it also makes the economy stronger. Knütter et al. (2011) and Born et al. (2012) pointed out that central banks transparency can assuage the incongruity of information and improve the condition of lending corporate financing credit creation which ultimately led banks to minimize their credit expansion.

Transparency in monetary policy also helps financial institutions to minimize their risk aversion, thus reducing credit expansion. Jappelli and Pagano (2000) also mentioned that information asymmetry may increase the credit spread by leading institutions to raise their risk aversion. In a nutshell, transparency in central banks of Asian economies has a strong effect on reducing credit expansion.

**Table 3: Transparency of central banks on credit expansion (All nations)**

Dependent variable: Bank loan deposit spread (BLD)						
Method	OLS			SGMM		
Regressors	(1)	(2)	(3)	(1)	(2)	(3)
Lag of BLD				-0.698*** (0.129)	-0.647*** (0.125)	-0.716*** (0.132)
MPT	-0.441*** (0.096)	-0.403*** (0.089)	-0.257*** (0.077)	-0.267*** (0.081)	-0.241** (0.071)	-0.214* (0.058)
CRE	-0.009 (0.004)	-0.002 (0.004)	0.006 (0.003)	-0.014 (0.018)	-0.019 (0.024)	-0.001 (0.017)
NPL	0.041 (0.047)	-0.002 (0.038)	0.007 (0.041)	0.285** (0.124)	0.374*** (0.136)	0.497*** (0.184)
OC	2.114*** (0.302)	1.722*** (0.274)	1.502*** (0.257)	3.112*** (0.557)	2.782*** (0.5020)	3.301*** (0.712)
RI		0.302*** (0.056)	0.312*** (0.061)		0.165*** (0.048)	0.193*** (0.063)
INF			0.201*** (0.073)			0.135 (0.096)
Adjusted R <sup>2</sup>	0.62	0.69	0.74			
F Statistic	36.87***	40.36***	35.61***			
J Statistic				34.48	36.86	41.15
P value of AR(1)				0.00	0.00	0.00
P value of AR(2)				0.67	0.58	0.36

Note: \*\*\*, \*\*, \* denotes statistical significance at 1%, 5%, and 10% level accordingly. Values in parentheses indicate standard error. The estimated coefficients of the constant are not illustrated in the table.

Source: Authors' calculations

The effect of credit risk (non-performing loans to gross loans) shows a positive and significant influence on credit spread in Asian countries, implying that the greater the creditworthiness, the greater the credit expansion. To safeguard themselves against any future damage, banks often increase credit expansion. This result is in line with the observations obtained by Hawtrey and Liang (2008). The fact that banks try to avoid taking risks could be one reason why there is a positive link between credit risk and credit spreads. When banks think there is more credit risk in the business, they are more careful and use strategies to reduce risk. Banks may raise credit spreads to make up for the higher expected credit losses and protect themselves from possible losses from loans that are not being paid back.

Operating costs over total assets also have a strong influence on the expansion of credit in Asian nations. It happens that maybe the management is not efficient in this part of the world and high operating costs is another important factor to consider for reducing the credit spread. Birchwood et al. (2017) also highlighted the inefficient management responsible for increasing credit spread.

In addition, the result also suggests that real interest rates and inflation have a significant association with credit spread in all models. As deposit and lending rates are adjusted at different occasions, a raise in interest rate may press the credit expansion upward (Akhter and Daly, 2009). Also, banks can react with the expectation of protecting themselves against a possible collapse of the debtors' earnings. According to Ugur and Erkus (2010), inflation raises changes vary and knowledge mismatches between buyers and sellers, which leads to credit growth.

### **5.3. The Impact of Central Banks Transparency (Emerging Nations)**

The regression estimates by both OLS and S-GMM by considering emerging markets are presented in Table 4. Again, the Sargan test (J statistic) suggests the above-mentioned distinguishing constraints are right. For all S-GMM regressions and serial autocorrelation tests (AR (1) and AR (2)), there is no serial autocorrelation in the models.

**Table 4: Transparency of central banks on credit expansion (Emerging nations)**

Dependent variable: Bank loan deposit spread (BLD)						
Method	OLS			SGMM		
Regressors	(1)	(2)	(3)	(1)	(2)	(3)
Lag of BLD				-0.823*** (0.051)	-0.829*** (0.053)	-0.837*** (0.055)
MPT	-0.701*** (0.156)	-0.647*** (0.141)	-0.576*** (0.132)	-0.301*** (0.096)	-0.264*** (0.073)	-0.249*** (0.066)
CRE	0.024 (0.019)	0.017 (0.009)	0.032** (0.022)	0.009 (0.004)	0.005 (0.004)	0.007 (0.005)
NPL	-0.009 (0.004)	-0.022 (0.036)	-0.006 (0.051)	0.071*** (0.030)	0.064** (0.032)	0.079*** (0.036)
OC	3.645*** (0.602)	3.246*** (0.535)	2.745*** (0.479)	0.816*** (0.259)	0.798*** (0.256)	0.876*** (0.312)
RI		0.187*** (0.065)	0.214*** (0.068)		0.312*** (0.059)	0.289*** (0.057)
INF			0.236*** (0.088)			0.194*** (0.068)
Adjusted R <sup>2</sup>	0.68	0.73	0.77			
F Statistic	31.12***	33.57***	36.96***			
J Statistic				13.86	14.49	13.79
P value of AR(1)				0.00	0.00	0.00
P value of AR(2)				0.58	0.32	0.36

Note: \*\*\*, \*\*, \* denotes statistical significance at 1%, 5%, and 10% level respectively. Values in parentheses indicate standard error. The estimated coefficients of the constant are not illustrated in the table.

Source: Authors' calculations

The results refer that central bank transparency (both measurements) has a strong negative correlation with credit spread in emerging Asian countries. It is also worthy of mention that the coefficients of central bank transparency are greater in emerging nations than in developed nations.

One possible explanation for the adverse relationship between central bank transparency and credit spreads is the effect on the expectations and views of market participants. When central banks function with a high degree of transparency, their accountability and credibility among market participants are enhanced. Increased transparency enables market participants to better comprehend the central bank's strategies, goals, and decision-making processes, thereby decreasing information asymmetry and ambiguity. Therefore, market participants have greater confidence and trust in the decisions of the central bank and are more likely to perceive reduced lending risks.

Also, the greater coefficients of central bank transparency in emerging economies relative to developed economies can be attributed to the substantially greater impact of transparency in these economies. Emerging economies are frequently confronted with greater challenges and uncertainties than developed economies, such as greater levels of financial instability, political risks, and informational obstacles. In such circumstances, the existence of transparent central banks becomes crucial. By presenting market participants with clear and timely information, transparent central banks can help alleviate these risks by enhancing their consciousness of the economic and financial environment. Greater coefficients of central bank transparency in emerging economies refer that transparency has a greater impact on market dynamics and credit spreads in these economies. The result is consistent with a recent study conducted by Tiberto et al. (2020) where they investigated the influence of central bank credulity on credit expansion in both advanced and emerging countries.

## 6. Conclusion and Policy Implications

This research explored the impact of central bank transparency on credit spreads on a sample of 15 Asian economies over the period from 2000 to 2019. Panel OLS (ordinary least squares) and system GMM method are applied, and the findings suggest that the transparency of central banks has a major effect on credit expansion in both advanced and emerging countries in Asian region. The results also reveal that the influence of central bank transparency on credit expansion in Asian emerging nations is more relevant than in advanced nations. Moreover, it is important to increase the transparency of central banks for distortions of details in the credit system and through reduction of the credit expansion, and thus the condition of financial intermediation will also improve. The study also identified additional factors that affect credit spreads in Asian nations. Credit risk had a significant and positive effect on credit spreads. It indicates that higher reliability is linked with a greater expansion of credit, as banks look to protect themselves from prospective losses. Credit spreads were also strongly influenced by the ratio of operating expenses to total assets, highlighting the significance of efficient management practices.

The results of this research have significant implications for governments, central banks, policymakers, regulators, and other relevant stakeholders. It should be a top priority to increase central bank openness since it may help to lower credit spreads and advance financial stability. The primary emphasis of central banks should be on delivering accurate and trustworthy information about their monetary policy and financial stability plans. Credit spreads are influenced by

factors such as credit risk and operating costs, which should be addressed by policymakers. Implementing measures to increase creditworthiness and decrease credit risk may lead to a reduction in credit spreads. Moreover, fostering efficient management procedures in the financial sector can reduce operating expenses, resulting in improved credit spread conditions. In addition, policymakers ought to take into account the unique dynamics of Asia's emerging economies. The findings emphasize the greater significance of central bank transparency in these economies, suggesting the need for robust regulations and procedures pertaining to transparency. To improve the financial system's transparency and credibility, institutional structures, governance procedures, and regulatory frameworks should also be strengthened.

## **7. Limitations and Future Research Agendas**

Despite making important contributions to the literature, this study is not without limitations. The study concentrates on a subset of Asian economies and its findings may not be immediately applicable to other regions or nations with distinct institutional structures and economic attributes. Furthermore, the research establishes a connection between central bank transparency and credit spreads but does not provide evidence of causality. Further research employing experimental or quasi-experimental designs would be essential to conduct a causal association between these variables. The selected variable for measuring central bank transparency is also a limitation of this study. Future studies can consider other indicators or indices for measuring central bank transparency.

## References

1. Alpanda, S., & Honig, A. (2009). The impact of central bank independence on political monetary cycles in advanced and developing nations. *Journal of Money, Credit and Banking*, 41(7), 1365-1389.
2. Arnone, M., & Romelli, D. (2013). Dynamic central bank independence indices and inflation rate: A new empirical exploration. *Journal of Financial Stability*, 9(3), 385-398.
3. Andrieş, A. M., Nistor, S., & Sprincean, N. (2020). The impact of central bank transparency on systemic risk—Evidence from Central and Eastern Europe. *Research in International Business and Finance*, 51.
4. Aydemir, R., & Guloglu, B. (2017). How do banks determine their spreads under credit and liquidity risks during business cycles?. *Journal of International Financial Markets, Institutions and Money*, 46, 147-157.
5. Akhter, S., & Daly, K. (2009). Bank health in varying macroeconomic conditions: A panel study. *International Review of Financial Analysis*, 18(5), 285-293.
6. Arellano, M. (2003). Panel data econometrics. Oxford university press.
7. Baltagi, H. B. (2005). *Econometric Analysis of Panel Data*. New York: John Wiley & Sons.
8. Bond, S. R., Hoeffler, A., & Temple, J. R. (2001). GMM estimation of empirical growth models.
9. Bond, S. R. (2002). Dynamic panel data models: a guide to micro data methods and practice. *Portuguese economic journal*, 1(2), 141-162.
10. Blinder, A. S., Ehrmann, M., Fratzscher, M., De Haan, J., & Jansen, D. J. (2008). Central bank communication and monetary policy: A survey of theory and evidence. *Journal of Economic Literature*, 46(4), 910-45.
11. Born, B., Ehrmann, M., & Fratzscher, M. (2012). Communicating About Macro-prudential Supervision—A New Challenge for Central Banks. *International Finance*, 15(2), 179-203.
12. Barth, J. R., Lin, C., Ma, Y., Seade, J., & Song, F. M. (2013). Do bank regulation, supervision and monitoring enhance or impede bank efficiency?. *Journal of Banking & Finance*, 37(8), 2879-2892.
13. Birchwood, A., Brei, M., & Noel, D. M. (2017). Interest margins and bank regulation in Central America and the Caribbean. *Journal of Banking & Finance*, 85, 56-68.
14. Bouakez, H., & Normandin, M. (2010). Fluctuations in the foreign exchange market: How important are monetary policy shocks?. *Journal of International Economics*, 81(1), 139-153.



15. Cecchetti, S. G., & Krause, S. (2002). Central bank structure, policy efficiency, and macroeconomic performance: exploring empirical relationships. *Review-Federal Reserve Bank of Saint Louis*, 84(4), 47-60.
16. Cukierman, A. (2008). Central bank independence and monetary policymaking institutions—Past, present and future. *European Journal of Political Economy*, 24(4), 722-736.
17. Cihak, M., Munoz, S., Teh Sharifuddin, S. & Tintchev, K. (2012). Financial Stability Reports: What Are They Good For?., IMF Working Paper WP/12/1, 4.
18. Dincer, N., & Eichengreen, B. (2014). Central bank transparency: Causes, consequences and updates. *Theoretical Inquiries in Law*, 11(1), 75–123.
19. Dincer, N., Eichengreen, B., & Geraats, P. (2022). Trends in monetary policy transparency: further updates. *International Journal of Central Banking*, 18(1), 331-348.
20. De Moraes, C., Barroso, G., & Nicolay, R. (2018). Monetary Policy and Credit Spread: A New Risk-Taking Channel. *The Empirical Economics Letters.*, 17(12), 1497-1506.
21. Eichler, S., Littke, H. C., & Tonzer, L. (2017). Central bank transparency and cross-border banking. *Journal of International Money and Finance*, 74, 1-30.
22. Eijffinger, S. C., & Geraats, P. M. (2006). How transparent are central banks?. *European Journal of Political Economy*, 22(1), 1-21.
23. Förch, T., & Sunde, U. (2012). Central bank independence and stock market returns in emerging economies. *Economics Letters*, 115(1), 77-80.
24. Fatum, R., & Scholnick, B. (2008). Monetary policy news and exchange rate responses: Do only surprises matter?. *Journal of Banking & Finance*, 32(6), 1076-1086.
25. Geraats, P. M. (2002). Central bank transparency. *The economic journal*, 112(483), F532-F565.
26. Ho, T. S., & Saunders, A. (1981). The determinants of bank interest margins: theory and empirical evidence. *Journal of Financial and Quantitative analysis*, 581-600.
27. Honohan, P., & Beck, T. (2007). Making finance work for Africa. The World Bank.
28. Hawtrey, K., & Liang, H. (2008). Bank interest margins in OECD countries. *The North American Journal of Economics and Finance*, 19(3), 249-260.
29. Jappelli, T., & Pagano, M. (2000). Information sharing in credit markets: a survey (Vol. 36). CSEF working paper.
30. Johnson, J., Arel-Bundock, V., & Portniaguine, V. (2019). Adding rooms onto a house we love: Central banking after the global financial crisis. *Public administration*, 97(3), 546-560.

31. Knütter, R., Mohr, B., & Wagner, H. (2011). The effects of central bank communication on financial stability: A systematization of the empirical evidence. FernUniversität in Hagen.
32. Kuttner, K. N., & Posen, A. S. (2001). Inflation, monetary transparency, and G3 exchange rate volatility. *Adapting to financial globalisation*, 14, 229.
33. Kurov, A. (2012). What determines the stock market's reaction to monetary policy statements?. *Review of Financial Economics*, 21(4), 175-187.
34. Klomp, J., & de Haan, J. (2010). Inflation and central bank independence: A meta-regression analysis. *Journal of Economic Surveys*, 24(4), 593-621.
35. Liao, G. Y. (2020). Credit migration and covered interest rate parity. *Journal of Financial Economics*, 138(2), 504-525.
36. Montes, G. C., & Nicolay, R. T. F. (2017). Does clarity of central bank communication affect credibility? Evidences considering governor-specific effects. *Applied Economics*, 49(32), 3163-3180.
37. Ordonez, G. (2013). The asymmetric effects of financial frictions. *Journal of Political Economy*, 121(5), 844-895.
38. Papadamou, S., Sidiropoulos, M., & Spyromitros, E. (2014). Does central bank transparency affect stock market volatility?. *Journal of International Financial Markets, Institutions and Money*, 31, 362-377.
39. Papadamou, S., Sidiropoulos, M., & Spyromitros, E. (2017). Does central bank independence affect stock market volatility?. *Research in International Business and Finance*, 42, 855-864.
40. Pelizzon, L., Subrahmanyam, M. G., Tomio, D., & Uno, J. (2016). Sovereign credit risk, liquidity, and European Central Bank intervention: Deus ex machina?. *Journal of Financial Economics*, 122(1), 86-115.
41. Powel, J. H. (2018). "Financial Stability and Central Bank Transparency: 350 years of Central Banking: The Past, the Present and the Future". (Accessed on 25 May 2018).
42. Rhee, H. J., & Turdaliev, N. (2013). Central bank transparency: Does it matter?. *International Review of Economics & Finance*, 27, 183-197.
43. Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, 9(1), 86-136.
44. Schinasi, G. J. (2004). Defining financial stability, IMF Working Paper no. 187, Washington, DC.
45. Tiberto, B. P., De Moraes, C. O., & Corrêa, P. P. (2020). Does transparency of central banks communication affect credit market? Empirical evidence for advanced and emerging markets. *The North American Journal of Economics and Finance*, 101207.
46. Trabelsi, E. (2022). Macroprudential transparency and price stability in emerging and developing countries. *Journal of Central Banking Theory and Practice*, 11(1), 105-129.

47. Ugur, A., & Erkus, H. (2010). Determinants of the net interest margins of banks in Turkey. *Journal of Economic and Social Research*, 12(2), 101.
48. Woodford, M. (2010). Financial intermediation and macroeconomic analysis. *Journal of Economic Perspectives*, 24(4), 21-44.
49. Weber, C. S. (2019). The effect of central bank transparency on exchange rate volatility. *Journal of International Money and Finance*, 95, 165-181.
50. Yıldırım-Karaman, S. (2017). Uncertainty shocks, central bank characteristics and business cycles. *Economic Systems*, 41(3), 379-388.
51. Zhou, K., & Wong, M. C. (2008). The determinants of net interest margins of commercial banks in mainland China. *Emerging Markets Finance and Trade*, 44(5), 41-53.