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Original Research Article

The Impact of Shadow Banking on the Financial Stability: Evidence from G20 Countries

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Shadow banking is a term that came out of the financial crisis of 2007-2009. There is a belief that shadow banking was one of the crisis reasons. Because the excessive expansion of shadow banking endangers the financial stability of countries, this paper examines the impact of shadow banking on financial stability using data from 14 countries of the G20 during 2002-2018. We divided countries into four groups according to the level of shadow banking activity; then, we employed the quantile regression method. The results indicated that shadow banking hurts financial stability (positive impact on financial instability) in countries with a high shadow banking index (fourth group countries). One unit of increase in the shadow banking index increases financial instability in the fourth group countries (high shadow banking) by 1.6 units. But in countries where shadow banking is not very strong (other three groups), shadow banking does not significantly affect financial stability.

Keywords: Shadow Banking, Financial Stability, Quantile Regression, G20.
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1 Introduction

Financial deregulation in the United States began in the 1970s and continued into the early 21st century. One of the consequences of these deregulations was the formation and expansion of non-bank financial intermediaries. These non-bank financial institutions, although engaged in financial intermediation, were not regulated for lending as the traditional banks. These financial institutions operated as banks, but they had no limitations that traditional banks faced in lending (Fève et al., 2019; Nersisyan et al., 2010). In the economic literature, these non-bank financial intermediaries are called shadow banks, and their lending system is known as the shadow banking system.

Paul McCully coined the term shadow banking and employed this term to refer to all sorts of investment, finance instruments, and non-bank structures (Borg, 2017). According to Adrian and Ashcraft (2016), the shadow banking system is a network of financial institutions that channel funds from savers to investors through a wide range of securitization and secured funding methods. Bernanke (2012) defines shadow banking as the set of institutions and markets that perform traditional banking functions but do so outside the traditional system of regulated depository institutions, or in ways that are only poorly related to it.

The most common definition of shadow banking is the Financial Stability Board (FSB). According to the definition of the FSB, shadow banking refers to credit intermediation, which includes entities and activities outside the regular banking system (FSB, 2015). Although most shadow banks are regulated and supervised somehow, they are not typically subject to prudential supervision, which is the main objective of regulating the traditional banking system (Adrian, 2014).

In addition to the emergence of non-bank financial intermediaries, shadow activities by traditional banks led to the expansion of the shadow banking system. As a result, the shadow activities of traditional banks have grown rapidly in China in recent years. For example, Yang et al. (2019), Huang (2018), and Chen et al. (2018) considered off-balance sheet financing of traditional banks as a form of shadow banking.

The 2007-2009 global financial crisis highlighted the role of shadow banking in financial stability (Huang, 2018; Voellmy, 2019). Since then, the term shadow banking has been associated with financial stability. Although there is a consensus on this issue that the shadow banking system played an important role in the financial crisis, most research has focused on the regular

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banking sector (Bengtsson, 2013). Therefore we aim to examine the relationship between shadow banking and financial stability. To this end, we employed cross-country data, including 14 countries of G20 during the period 2002-2018. As these countries are highly involved in shadow banking, the quantile regression model was deployed to analyze different groups of countries (in terms of shadow banking share). Countries are divided into four groups according to the level of shadow banking activity. 1- countries with low shadow banking activity, 2- countries with lower middle shadow banking activity, 3- countries with upper-middle shadow banking activity, and 4- countries with high shadow banking activity. Therefore, we examine whether shadow banking is a determinant of financial stability?

The article is organized as follows. The second section describes the theoretical background on the relationship between financial instability and shadow banking. The third section presents the literature review. The fourth section describes the research data and estimation method. The fifth section provides the findings, and finally, it concludes with concluding remarks.

2 Theoretical Background

The link between shadow banking and financial instability is through financial regulation. Since shadow financial intermediaries are not regulated by the central bank, on the one hand, they can create excessive credit. On the other hand, their lending is likely highly risky (as happened in the 2007-2009 financial crisis). Financial institutions are generally involved in shadow banking to escape banking regulations such as regulations on capital requirements. In this way, they can increase their leverage, which increases their expected returns (FSB, 2013). It endangered the financial system because the new financial system is accompanied by poor monitoring and regulation.

In recent years, some economists argue that because financial activities can move to the unregulated sector, tightening financial regulations could increase financial instability (Huang, 2015). In other words, with the tightening of financial regulations, investors are motivated to borrow from the shadow financial intermediaries (which leads to the growth of shadow banking). On the other hand, commercial banks are motivated to lend by circumventing financial regulations (shadow banking by traditional banks). This issue challenges the argument that the government can always ensure financial stability by strengthening financial regulation.

Bengtsson (2013) argues that the relationship between shadow banking and financial instability is through Money Market Funds (MMFs), which are

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contagious through MMFs run. It follows that asset prices will be far from real values and jeopardize financial stability.

Although Shadow banking increases credit availability, it increases risk exposure of financial stability (Rubio, 2017). Turner (2016) argues that lending and liquidity creation are necessary for economic growth, but if this liquidity creation expands too much, it will be detrimental to financial stability and economic growth. It can be said that a stable financial system is a prerequisite for sustainable economic growth (Tankoyeva et al., 2018). But the problem is that in the modern financial systems, shadow banks create debt in excessive quantities. This credit does not finance the new investment but funds consumption or real estate purchase.

What happens in bank lending is not the intermediation of existing money (from savers to borrowers) but the money creation and new purchasing power. Even if loans are paid back in full can still produce instability. In Turner's view, this is like economic pollution. The heating of houses is socially valuable, but the carbon emissions hurt the environment. Likewise, credit creation to buy houses by households can also be socially beneficial, but the liquidity generated can destabilize the economy. Therefore, liquidity pollution, like environmental pollution, must be limited by public policies.

Credit and money generated by banks increase purchasing power. Much of this purchasing power is spent on purchasing existing assets (especially real estate). If the supply is limited (which is often the case), the result is not a new investment but rising asset prices. As a result, banks make the economy unstable unless public policy regulations constrain them. Shadow banks are not subject to these regulations, and therefore their expansion endangers financial stability. Even Irving Fisher and Henry Simons, who advocated free markets policies and were suspicious of government intervention, believed that credit and money creation processes were so different in nature that free-market principles should not be applied to them. They believed that credit creation was very important and could not be left to bankers (Turner, 2016).

3 Literature Review

Tobias Adrian is a pioneer in addressing the concept of shadow banking. Adrian and Shin (2008) argue that financial intermediaries are central to monetary policy transmission and financial stability policies. The balance sheet of market-based financial intermediaries provides a window for monetary policy transmission through capital market conditions. They state that the financial crisis of 2007-2009 has the distinction of being the first post-securitization crisis, and focus on managing the balance sheet of financial

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intermediaries, which they say is important for the real economy as well as the soundness of the financial system, and suggested that asset prices alone are not sufficient to realize the situation of financial intermediaries. Balance sheet dynamics contain important information about both key components of GDP and the financial system's stability. Therefore, monetary policy and financial stability are two sides of a coin.

Adrian and Shin (2009) examined the role of shadow banking in the 2007-2009 financial crisis. They indicated that shadow banking results from asset securitization and the integration of banking to the capital market developments. Securities were originally intended as a way to transfer credit risk to those who were able to bear it but eventually gave rise to the fragility of the entire financial system by allowing banks and other intermediaries to "leverage up" by buying one another's securities.

Adrian (2014) examines the role of shadow banking in financial stability by giving examples. Each example describes its economic mechanisms, potential risks from activities, and policy options to reduce such risks.

Huang (2015) examines shadow banking as off-balance sheet financing in a general equilibrium model for the US economy and seeks to answer whether tightening financial regulations increases financial stability? The result shows that the relationship between financial instability and financial regulation is U-shaped rather than monotonically decreasing. In other words, if the regulation is negligible and low, increasing financial regulation reduces financial instability. But when financial regulation becomes stringent enough, financial instability will increase. Huang (2015) also explores Minsky's financial instability hypothesis in an economy with shadow banking. The result indicated that reducing asset fluctuations in the economy accelerates the growth of shadow banking.

Sunderam (2015) examined whether investors treated the short-term debt issued by shadow banking as a money-like claim. To this end, a model is presented that the central bank and the financial sector respond to the demand for money-like claims. The results indicated that the financial system responds to demand shocks of money-like. Thus, the demand for money plays a significant role in the growth of shadow banking. The results confirm that investors consider shadow banking debt as a money-like claim.

Barbu et al. (2016) examined the relationship between shadow banking and macroeconomic indicators. For this purpose, the panel data method and quarterly data were employed for 15 EU countries during 2008-2015. The results indicated that increasing GDP growth, short-term interest rates, money

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to GDP ratio, and investment fund assets to GDP reduce the total shadow banking assets.

Turner (2016) argues that the core of financial instability in modern economies is the interaction between the capacity of banks to generate credit, money, and purchasing power on the one hand and the limited supply of urban land on the other hand. The outcome of this interaction is the self-reinforcing cycles of booming and falling asset prices (such as land and housing) and credit. Shadow banks that are not regulated play an important role in these cycles.

Moreira and Savov (2017) developed a macroeconomic model for examining the shadow banking system. They state that shadow banking benefits the financial system by providing liquidity and increasing asset prices, but it also makes the system fragile. The increase in uncertainty caused by the spread of shadow banking is forcing financial institutions towards collateral-intensive funding.

Rubio (2017) examined how shadow banking enhances lending in the economy using the DEGE model and indicated that it increases borrowers' consumption, even though it may jeopardize financial stability. The results show that exerting Basel regulations is effective to achieve macro-prudential objectives such as a stable financial system.

Diallo and Al-Mansour (2017) explored the impact of shadow banking on the relation between the insurance industry and financial stability using cross-country data. As a proxy for the shadow banking index, they utilized shadow financial intermediaries' assets to GDP ratio and calculated Z-score as an index for financial instability. To measure the impact of shadow banking, they divided the countries into two groups: low level of shadow banking and high level of shadow banking and represented each one by a dummy variable. The results indicated that the insurance industry has a negative and significant impact on financial stability. It has a devastating effect on the financial stability in the countries with more shadow assets.

Fève et al. (2019) explored the interaction between traditional and shadow banking using a small-scale DSGE model for the US economy. Their findings show that increasing shadow banking activity strengthens the transmission of shocks to the real sector of the economy because it increases regulatory evasion. The results of this paper support the recent shift in banking regulation toward a more global approach, as advocated in Basel III.

Yang et al. (2019) investigated the effect of shadow banking on economic activity in China. To this end, they developed a model for the Chinese economy using a DSGE framework considering the interaction between

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traditional and shadow banks. They indicated that regulatory shocks were the main reason for China's shadow banking growth from 2009 to 2016. Moreover, financial friction in shadow banking creates a "dual financial acceleration" mechanism and thus shows how shadow banking adversely affects the effectiveness of macroprudential policies.

A review of previous studies shows that although there is a strong theoretical literature on the impact of shadow banking on financial stability, it suffers from the shortage of empirical studies on this effect.

Most studies on this issue are theoretical, and empirical studies mainly addressed financial stability and banking crisis (and not shadow banking). Also, shadow banking studies mostly examined the issue for a specific country, and few studies were devoted to the cross-country data. On the issue of shadow banking's effect on the financial stability for a panel data of countries, Diallo and Al-Mansour (2017) could be mentioned in which shadow banking is a connection channel between the insurance industry and financial instability. Still, its direct effect on financial stability is not investigated. In this paper, we examine the impact of shadow banking on financial stability using quantile regression and cross-country data.

4 Data and Methodology

4.1 Data

The Financial Stability Board publishes annual reports on shadow banking every year. These reports provide information on the assets of shadow financial intermediaries. This information has been available for 30 countries since 2002. Only 20 countries have available data for other economic variables out of these countries. Therefore, the study was limited to these 20 countries. Based on the purpose of the study, out of these 20 countries, 14 countries were selected that are members of the G20 group, and the data were collected from 2002 to 2018. These countries include Argentina, Australia, Brazil, Canada, China, India, Indonesia, Japan, South Korea, Mexico, Russia, South Africa, the United Kingdom, and the United States.

4.1.1 Shadow Banking Index

Diallo and Al-Mansour (2017) introduced the shadow banking index as the value of shadow bank assets to GDP ratio. But since we are going to measure the level of shadow banking (relative to the financial system), it seems that the index is not suitable to use in this research because it can measure the level of shadow banking relative to the whole economy. Therefore, in this study, the

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shadow banking index is measured by the ratio of the assets' value of non-bank financial intermediaries divided by the total assets' value of the entire financial system. In the FSB data, Non-bank financial institutions include insurance companies, pension funds, public financial institutions, and other non-bank financial intermediaries (including money market Funds, financing companies, structured finance vehicles, hedge funds, other investment funds, broker's dealers, real estate investment trusts and Funds, trust companies).

4.1.2 Financial Stability Index

We considered the banking crisis index as an alternative to the financial instability index. However, it is very difficult to accurately identify the real-time of the banking crisis. Banking crises are realized when they have become so severe that they can stimulate markets. In this paper, to overcome this problem, we employed the principal component analysis (PCA) method like Batuo et al. (2018). We converted several correlated variables into non-correlated variables (principal components) to apply this method. The first component considers the maximum variance of the data, and the second component predicts the maximum variance of the data that are not considered by the first component, and so do it for other components. Applying this method is especially appropriate when the characteristics of the index in question are hidden between different criteria.

To calculate the index of financial instability based on Batuo et al. (2018), three criteria are considered: change in the real interest rates (dintr), change in the ratio of domestic credit to the private sector to GDP (dcredit), and change in the ratio of broad money (m2) to GDP (dm2). We calculated the financial instability index for each country annually using the principal component analysis method. It is noteworthy that by "change" we mean the absolute value of change. The results are shown in Table (1):

Table 1
Principal Component Analysis for Instability Index

Variable	Eigenvalues	Variance	Comp Loading
Interest Rate	1.818	0.6061	-0.06
Credit	0.997	0.3324	0.706
Liquidity Ratio	0.184	0.0614	0.705

Source: Research Findings

Since the eigenvalue of the first variable is larger than the other variables, this variable is a determinant in explaining the data changes. The first variable

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(interest rate) explains about 60% of the data dispersion. Based on the results of the last column, the shadow banking index is an outcome of equation 1:

instabl= -0.06 (dintr)+ 0.706 (dcredit)+0.705 (dm2) (1)

The variables that represent the index of financial instability include changes in the interest rates, changes in the domestic lending by banks, and changes in the ratio of liquidity to GDP, respectively.

Table (2) briefly represents the symbol, definition, and sources of all variables in this research:

Table 2
Variables Definitions

Variable	Unit	Symbol	Definition	Source
Financial Instability	---	Instabl	The index of financial instability consists of three criteria: change in the interest rates, change in the domestic credit to the private sector, and change in the ratio of money to GDP	Research calculation
Shadow Banking	Percentage	Shadow	The ratio of assets of shadow banks to the total assets of financial intermediaries	FSB
GDP Growth	Percentage	Ggdp	Percentage change in the real GDP compared to the previous period	World Bank
M2 Growth	Percentage	gm2	Percentage change in the liquidity compared to the previous year	IMF
Domestic Credit to Private Sector to GDP	Percentage	Credit	domestic credit to the private sector (GDP ratio)	World Bank
Inflation	percentage	Inf	Percentage change in the consumer price index compared to the previous year	World Bank

Table (3) provides descriptive statistics of the variables.

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Table 3
Descriptive Statistics of Variables

Variable	Average	Standard Deviation	Maximum	Minimum	Skewness	Kurtosis
Instabl	224	4.73	7.74	91.07	-0.32	7.21
Shadow	238	40.96	19.33	77.49	0.96	0.05
Ggdp	238	3.43	3.51	14.23	-10.89	0.26
gm2	237	4.62	4.17	25.90	-1.35	1.94
Credit	237	11.70	8.92	41.55	-25.55	0.77
Inf	238	110.13	62.80	281.98	21.46	0.62

Source: Research Findings

The largest value of the shadow banking index is for the United States in 2007 (the first year of the global financial crisis), which is 77.49. In other words, about 77% of the asset values of finance companies were related to shadow banks.

To explain the impact of shadow banking on financial stability, we divided the countries into four groups based on their shadow banking activity.

1) Countries with low shadow banking activity (countries with an average shadow banking index of less than 40%)
2) Countries with lower middle shadow banking activity (countries with an average shadow banking index between 40% to 50%),
3) Countries with upper-middle shadow banking activity (countries with an average shadow banking index between 50% to 70%) and
4) Countries with high shadow banking activity (countries with an average shadow banking index of more than 70%)

Table (4) shows the average shadow banking index for countries in four groups

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Table 4
Average Shadow Banking Index for Countries

Group 1 Countries		**Group 2 Countries**		**Group 3 Countries**		**Group 4 Countries**	
Country	Average Shadow Banking Index	Country	Average Shadow Banking Index	Country	Average Shadow Banking Index	Country	Average Shadow Banking Index
Brazil	34.73	Japan	42.47	Australia	53.04	United States	74.12
India	27.76	South Korea	41.84	Mexico	50.38	Canada	70.03
Argentina	2.89	United Kingdom	45.22	South Africa	59.57	---	---
China	18.61	---	---	---	---	---	---
Indonesia	17.70	---	---	---	---	---	---
Russia	13.92	---	---	---	---	---	---

Source: Research Findings

According to Table (4), shadow banking activity is higher in the United States and Canada than in other countries. The average of this index for these two countries is about 74.12 and 70.03, respectively, and their standard deviation is very small. The lowest level of shadow banking activity is in Russia, where the average value of shadow bank assets is about 14% of the total value of financial intermediary's assets.

4.2 Quantile Regression

The activity of the shadow banking sector is different among these countries. It may cause bias in the estimation results because it gives rise to the distribution of error terms to be non-normal. In the quantile regression method, unlike conventional regression methods, the relationship between the dependent variable and the independent variables is presented based on the conditional mean function. This method is efficient and has a better performance than conventional models in case of the non-normal distribution of error terms or the presence of outlier data in the model (Shokoohi-Fard et al., 2019; Schaeck, 2008). The main difference between quantile regression and the OLS method is that quantile regression provides information about the slope at different points of the dependent variable for the set of explanatory variables, while OLS does not provide information about it. Therefore, when data has a large degree of variation and there may be more than a single slope parameter, the quantile regression is appropriate (Schaeck, 2008).

Given that the θth quantile of the conditional distribution of the dependent variable (y_i) relative to the explanatory variable (x_i) is a linear function, the quantile conditional regression model can be written as follows:

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$$y_i = \acute{x}_\iota \beta_\theta + \mu_{\theta i} \quad (2)$$
$$Quant_\theta((y_i|x_i)) = \inf(\{y: F_i(y|x)(\theta)\} = \acute{x}_\iota \beta_\theta \quad (3)$$
$$Quant_\theta(u_{\theta i}|x_i) = 0 \quad (4)$$

Where, $Quant_\theta(u_{\theta i}|x_i)$ captures the θth quantile of the y_i on the regressors vector x_i. β_θ is a vector of parameters that are estimated for different quantiles of θ, and its value is between zero and one. The conditional distribution y on x can be traced by moving in the range (0,1) θ.

4.3 Model Specification

The model is specified as follows

$$fininst = \alpha + \beta_1 shadow_{it} + \beta_2 ggdp_{it} + \beta_3 gm2_{it} + \beta_4 inf_{it} + \beta_5 credit_{it} + e_{it} \quad (5)$$

Where the dependent variable is the index of financial instability, independent variables from the left denote shadow banking index, economic growth rate, liquidity growth rate, inflation rate, and domestic credit to the private sector (as a ratio of GDP), respectively.

5 Estimation Results

The model was estimated using Stata software. Since the data has a time dimension, before estimation, the unit root test was conducted for all variables to avoid spurious regression. Table (5) shows the result of this test.

Table 5
Results of Unit Root Test

Variable	Type of test	P-Value	Result
Instabl	Im- Pesaran- Shin	0.0000	Stationary
Shadow	Im- Pesaran- Shin	0.0260	Stationary
Ggdp	Im- Pesaran- Shin	0.0000	Stationary
gm2	Im- Pesaran- Shin	0.0021	Stationary
Credit	Im- Pesaran- Shin	0.0040	Stationary
Inf	Im- Pesaran- Shin	0.0000	Stationary

The Im- Pesaran- Shin test was used to examine the stationary of the data. The results indicate that all variables are stationary at the level. Therefore, the model was estimated, and its results are shown in Table (6).

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Table 6
Results of Model Estimation

Variable	Group 1 countries		Group 2 countries		Group 3 countries		Group 4 countries	
	Coefficient (t-statistic)	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Shadow	-0.219 (-0.55)	0.585	-0.215 (-1.04)	0.305	0.033 (0.60)	0.553	1.606 (2.91)	0.010
Ggdp	-0.053 (-0.52)	0.601	-0.590 (-1.31)	0.199	-0.223 (-1.18)	0.244	-1.599 (-1.95)	0.068
gm2	0.106 (2.13)	0.037	0.691 (3.53)	0.001	0.371 (5.59)	0.000	-0.831 (-6.04)	0.000
Inf	-0.130 (-1.30)	0.198	-0.568 (-0.71)	0.483	-0.115 (-0.64)	0.525	0.672 (0.56)	0.583
Credit	0.052 (6.78)	0.000	-0.005 (-0.17)	0.867	0.039 (6.32)	0.000	0.310 (5.36)	0.000
	Pseudo R2 = 0.26		Pseudo R2 = 0.21		Pseudo R2 = 0.40		Pseudo R2 = 0.36	

Source: Research Findings

The results suggest that the positive impact of shadow banking on financial instability is significant only for countries with a high level of shadow banking activities. The argument is that if shadow banking expands too much, financial stability will be jeopardized. More precisely, when the value of the assets of shadow banks reaches 70% of the entire financial system, financial stability is compromised. This result is in line with Turner (2016). In the fourth group of countries (high shadow banking), a one percentage point increase in the shadow banking index will increase the financial instability index by 1.6 units, but in other groups, this effect is not significant.

The impact of economic growth on financial instability is significant only for the fourth group of countries. A one percentage point increase in economic growth reduces financial instability by 1.6 units for this group. But, of course, this coefficient is confirmed at the confidence interval of 90%. It is noteworthy that the coefficient of economic growth rate is almost equal to the shadow banking but with the opposite sign. In other words, it can be said that when shadow banking activity in the economy is very high, it neutralizes the positive impact of economic growth on financial stability.

The coefficient of liquidity growth rate is significant in all groups of countries. In countries in the first, second, and third groups, liquidity growth increases financial instability by 0.106, 0.691, and 0.371 units, respectively. However, in countries with high shadow banking, liquidity growth increases financial stability and reduces instability. But the effect of inflation on financial stability was not significant in any group. Moreover, the variable of domestic credit has a positive and significant effect on the financial instability

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in all groups, except for the countries of the second group. This effect is greater in the fourth group countries. A one percentage point increase in the ratio of credit to GDP leads to an increase of financial instability index in groups 1, 3, and 4 by 0.052, 0.039, and 0.31 units, respectively.

6 Conclusion

Since shadow banks are not subject to the macroprudential regulations of the central bank, the rapid expansion of this type of banking allows for excessive lending, which leads to financial instability. However, most of the literature discussed the relationship between financial stability and shadow banking from a theoretical perspective, and few researchers investigated the issue by empirical data. We examined this relationship empirically.

The results indicated the positive effect of shadow banking on the financial instability for countries with a high shadow banking sector. Thus, a unit increase in the shadow banking index increases financial instability by 1.6 units. However, shadow banking in other groups does not significantly affect financial instability. Therefore, the hypothesis is confirmed only for the fourth group of countries (high shadow banking activities). In this group of countries, a one percentage point increase in the ratio of shadow banking to the entire financial system (in terms of asset value) give rise to a 1.6 unit increase in the financial instability index. This result is compatible with the theory suggested by Turner (2016) (an excessive growth in the shadow banking sector reduces financial stability). Shadow banking with small and medium-size will not jeopardize financial stability. But when it expands excessively, financial stability will be endangered.

Economic growth on financial instability is significant only for the fourth group of countries, and its coefficient is almost equal to the shadow banking coefficient but with a negative sign. Therefore, it can be argued that an excessive increase in shadow banking activity neutralizes the positive effect of economic growth on financial stability. According to the results, a one percentage point increase in economic growth reduces financial instability by 1.6 units. The liquidity growth rate is significant in all groups of countries. In the first to the third group of countries, liquidity growth increases financial instability, but it reduces financial instability in countries with high shadow banking. The effect of inflation on financial stability was not significant in any group. However, the variable of domestic credit to the private sector has a positive and significant effect on the financial instability in all groups, except for the second group.

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Based on the results of this study, we recommend that policymakers and monetary authorities curb the growth of shadow banking. However, it may happen through macroprudential policy and financial surveillance. To this end, the implementation of Basel 3 requirements would be helpful.

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