



UDK: 336.71.078.3

DOI: 10.2478/jcbtp-2022-0009

Journal of Central Banking Theory and Practice, 2022, 1, pp. 207-226

Received: 28 July 2020; accepted: 12 November 2020

Saif Ullah *, **Sayed Irshad Hussain ****,
Agha Amad Nabi ***, **Khurram Ali Mubashir ******

Role of Regulatory Governance in Financial Stability: A Comparison of High and Low Income Countries

Abstract: This study explores the effect of regulatory governance on financial stability using cross-sectional data from 55 countries. The findings show that regulatory governance and various sub-components of regulatory governance are positively correlated with financial stability in the selected countries. The results, based on the ordinary least square method, explain that the regulatory governance has a significant positive influence on financial stability in the selected countries. Further, concerning different dimensions of regulatory governance, it is showed that an individual impact of all components on financial stability is positive except for the strength of external audit, and supervisory independence and accountability. However, central bank's independence and economic independence have a statistically significant effect on financial stability, whereas central bank accountability, supervisory independence and accountability, political central bank independence as well as the strength of external audit have an insignificant statistical influence on financial stability. Finally, the study concludes that regulatory governance and individual dimension of regulatory governance played the most significant role in improving financial stability in the selected countries.

Keywords: Regulatory Governance, Financial Stability, Selected countries

JEL Classification: E02, E42, E58, F02, G21, G28, G33

* Department of Business Administration, Newports Institute of Communications and Economics, Karachi Campus, Pakistan

E-mail:
saifullah_142@yahoo.com

** SZABIST,
Karachi, Pakistan

E-mail:
syedirshadims@gmail.com

*** Dow University of Health Sciences, Karachi, Pakistan

E-mail:
ammadagha786@gmail.com

**** Department of Business Administration, Iqra University, Karachi, Pakistan

E-mail:
khurram.mubasher@iqra.edu.pk

1. Introduction

The theory of financial stability can be traced back in pioneer work of Keynes (1936) and Minsky (1985) who tried to explore reasons of financial crises and concluded that the financial system is fragile. Minsky's theory about debt accrual got importance in the press in the late 2000s during subprime mortgage. Financial stability can be defined as characteristics of the financial system to manage risk efficiently, allocate resources efficiently, and absorb shock (Houben, Kakes, & Schinasi, 2004). Financial crises unveiled much weakness in developed as well as many emerging countries (Cornand & Gimet, 2012). The regulators were unable to control excessive risk-taking practices of banks before the financial crisis. Global financial stability report (2018) warned that supervisors and regulators of financial sectors should remain attentive as new threats to financial stability are emerging.

Regulatory agencies like central banks are getting more prominence after financial crises and efforts are made to make constitutional and democratic framework by policymakers. Regulatory agencies are formed by the government and a fair relationship between different regulatory agencies is necessary. Regulators of financial institutions hold a unique position among all regulators due to complicated financial systems and fast-pace changes in financial sectors. The financial sector is an essential sector in an economy and plays a leading role in the regulation of the non-financial sector. Therefore, the governance of the financial sector is a crucial concept in the current ever-changing financial environment (Quintyn, 2007). Schwarcz (2019) pointed out flaws in the process of macroprudential regulation. He termed quick response from the regulator due to the pressure of politicians and media to device ad hoc measures. These ad hoc measures by regulators result in systemic risk. Regulatory governance quality is an essential factor in development, economic growth, and performance. There is a nexus of governance among non-financial firms, financial sector regulator, and the financial sector. This nexus suggests that regulatory governance quality is the crucial determinant of financial stability in any given country. KPMG leading audit firm ranked risk governance and regulators active role in financial soundness in the report issued on ten critical challenges of 2019. The global financial crisis has increased the importance of regulatory and supervisory mechanisms, this has significantly helped in improving banks' resilience, and it has positive effect on financial stability (Vučinić, 2020)

Governance mechanisms and risk-taking practices of bank analysis may predict bank behaviour (Laeven & Levine, 2009). Good regulatory governance helps in controlling risk and avoiding moral hazard problem. Dysfunctional behaviour of

government result in bad governance, which results in unsound practices and instability of the financial system. There is a role of good regulatory governance in the promotion of a stable and sound financial sector. However, many regulators were unable to prevent financial crisis due to the lack of independence, resources, and mandate, which fail in covering systemic risk (Mohr & Wagner, 2013). Good regulatory governance is vital for a well-functioning banking system and financial system integrity (Jassaud, 2014). The 2007-2009 financial crisis was of insolvency nature instead of a liquidity crisis. The post-crisis regulatory reforms are needed like capital requirement (Thakor, 2018).

There is a lot of empirical literature available to discuss the financial stability issue and regulatory governance as important determinants of financial stability. However, the research on the relationship between financial stability and regulatory governance is rare in multiple countries and usually uses unique survey data. Most of the studies use financial stability and regulatory governance as one variable. Besides, the majority of studies consider one dimension of regulation as the proxy of regulatory governance. However, Quintyn (2007) divided regulatory governance into independence, central bank accountability, transparency, and integrity in central bank operations. These dimensions are essential for overall regulatory governance. The analysis at the individual dimension level is vital to determine which aspect is more important for financial stability. However, the available empirical studies have not investigated the relationship between regulatory governance and financial stability in a comprehensive manner. This created a need for a detailed analysis of the impact of regulatory governance on financial stability across the globe.

Another important fact is that high-income countries have good regulatory framework with good institutions. However, low- and middle-income countries lack all these regulatory framework and environment. Therefore, there is a need to compare results of both income levels. The present study intends to assess the role of regulatory governance in financial stability. Further, the study also attempts to explore the role of individual components of regulatory governance in financial stability using a more extensive and in-depth analysis of board database. More precisely, the study empirically estimates the effect of regulatory governance and its individual components on financial stability along with the control variables by developing the index of regulatory governance and financial stability. Formation of an index of financial stability and regulatory governance helps to reduce biases in the selection of limited variables and to test the relationship among them. This study further divides the sample into high income, low-/middle-income countries, and compares both results for better understanding of the issue.

The remainder of the paper organized with as the relevant literature analysed in the next section, research methodology, data, and economic model being explained in the third section, results, and discussion are presented in the fourth section, and conclusion and policy implications given in the final section.

2. Literature Review

Financial stability is defined as a situation where the financial system can bear shocks, efficient allocation of resources and effective risk management (Houben, Kakes, & Schinasi, 2004). Since the last decade, financial stability objectives are the focus of economic policymaking. Central banks issue financial stability reports due to their importance for periodic analyses made by the Bank of International Settlements (BIS), the International Monetary Fund (IMF), and the World Bank. Increase in nonmonetary assets leads to more leverage, cross-border, cross-industry integration, and more multifaceted financial system. According to Akram, Bardsen, and Lindquist (2007), financial stability becomes a more important concept for banks to study due to their dominant role as provider of payment system and financial intermediary. Financial stability indicators' choice is vital due to the different direction of indicators and complex nature of policy and economic implications. The critical question arises whether the interest rate is useful or if any other policy instruments should be to achieve financial stability objectives.

Regulatory agencies and central banks are putting every effort to develop stress testing exercises and early warning indicators to avoid a financial crisis in the future. In this regard, financial fragility of a system is measured to establish reactions to regulatory framework changes and macroeconomic shocks. A precise definition of financial stability is not available, and the measurement, monitoring, and development of financial stability face difficulties. The use of a backward-looking approach is another problem in forecasting financial system performance and financial stability measure. Many financial stress indicators are based on situation in banks/the financial system at a given point in time or the financial crisis is usually measured through binary variables with a yes or no answer (Morales & Estrada, 2010).

Central banks in this modern era have two core functions of maintaining financial and monetary stability. They should be independent in deciding about monetary policy. From the beginning of the 1980s, many CBs have been given independence to maintain price stability, which raises the issue of accountability of central banks. The financial stability objective of central banks got prominence

due to tough competition in the banking industry over the past decades. However, financial stability is now the primary objective of central banks due to the importance and smooth functioning of the financial system's key elements. Better supervision can help in the maintaining of financial stability due to the link between financial and prudential stability. Oosterloo and Haan (2006) point out that many countries adopted different ways to achieve financial stability objectives, including having different institutions for financial stability and prudential regulations in place. Their survey of financial stability shows that in the shape of functions and power to its core tasks most central banks do not have a mandate and some central banks have financial stability as objectives in their banking code but this objective is very vague. . The survey also showed that OECD countries' central banks lack clear financial stability objectives as supervisors. Many central banks publish a financial stability review but accountability is missing, including a smooth national payment system and the lender of last resort function. Therefore, due to the domino and contagion effect, a problem in one bank may affect the whole financial system. They suggested that regulatory independence is essential for achieving financial stability. Arnold (1999) called financial stability "the stool's third leg" with monetary and fiscal stability being the other two. The transmission of monetary policy in financial systems and government intervention in the domestic financial sector made it imperative that monetary stability cannot be achieved standalone. Financial sector destabilization affects monetary policy negatively, and it further destabilizes the economy as well. This fact highlights the importance of financial sector governance and supervision. Bank's prudential supervision and stability of the financial system is essential. Many economists propagate free market approach everywhere but the financial sector because banks have to judge the creditworthiness of firms in the process of loan sanctions.

Sivakumar (2011) suggested that for financial system integrity banks have to meet specific recommendations, prerequisite, and financial regulations boundaries. The regulators usually grant an appeal right to banks to maintain fairness in operations. However, many regulatory frameworks failed due to excessive dependence on compliance and prevention of financial crisis. On the other hand, as the lender of last resort, central bank provides liquidity to banks and has to pass judgment of illiquidity or insolvency of banks. In many countries, banking supervision is entrusted to the central bank. According to Sharma and Kaushik (2008), good governance structures are essential for the promotion of innovation culture and growth of the economy. The financial systems including banks, NBFI, insurance companies, and institutions are responsible for financial stability, channeling of funds from saving to investors, and the protection of consumers of financial products. This financial stability objective can be achieved

through continuous interaction among the regulator, a financial institution, and the market. The important question is what is the role of regulatory governance in financial stability?

The World Bank introduced the term "good governance" in 1989, and this phenomenon quickly becomes a policy objective. Governance can be characterized as the use of administrative, economic and political powers. These three dimensions include administrative and political governance with the implementation of decisions and policy process included. The economic governance dimension comes from the process of decision-making. However, good governance can be identified in many physiognomies like the involvement of all people, either directly or indirectly. In good governance, the rule of law refers to a fair legal framework and impartiality. The accessibility to concerned people can be ensured through transparency, and responsiveness ensures that it serves the stakeholders. Good governance can mediate the process and consensus can be created among stakeholders (Elahi, 2009).

There is a lot of empirical evidence available to establish a relationship between regulatory governance and financial stability. Das, Quintyn and Chenard (2004) reported that the concept of financial stability is a multilateral landscape like the supervision of prudential, monetary policy, settlement systems and payment and financial markets and this resulted in difficulties in measurement. They found that governance quality has a relationship with financial soundness along with the banking sector structure, public sector governance, the quality of political institutions, and macroeconomic conditions. They constructed a regulator governance index by four components, i.e. accountability, independence, integrity, transparency. To achieve financial stability, the central bank uses indirect instruments, which makes it more difficult to measure and thus the central bank's accountability is difficult. One of the missions of many central banks is to manage smooth payment system operations. However, financial stability cannot be achieved through this mission alone as it is only one component of the overall multitask financial stability function.

In financial crises, governance of financial regulation is essential factors, which can lead to systemic governance failures and have severe implications for financial regulation reforms. In many cases, regulators were aware of the increase in fragility of the financial system and got sufficient time with their policies, but they chose to maintain procedures and did not respond (Levine, 2012). Kim and Kim (2014) claimed that inefficient architecture and inferior governance are distinguished and discussed in literature while authorities responsible for supervision that never controlled the spread of risk nor prevented systemic risk. After the

1990s, changes in the supervisory architecture of the financial sector were identified and they have had a blurring effect on huge conglomerates as well. Many countries face systemic risks, management difficulties, regulatory duplication and arbitrage and inconsistency due to these radical changes. Before 2008, many supervisory authorities were integrated into a unified entity. Empirical investigations of this phenomenon were not available until the mid-2000s. Kim and Kim (2014) used Z-score and panel data on 34 OECD members' countries and made the first attempt to investigate the impact of architecture and supervisory authorities' governance on the banking stability and reported that Z-score compares the potential for risk and buffers. They found the positive influence of independence dimension of supervisory governance on banking stability. They also found the negative influence of the central bank's involvement in supervision and integration of authorities on banking stability. The interactive effect between integration of authorities and independence is also positive but not in the central bank's involvement in financial supervision and independence on banking stability in lower level independence countries. Good supervisory governance is an essential requirement for financial market stability. Independence is the necessary and vital component of regulatory governance as supervisory authorities face the risk of the influence of different interest groups and political circles.

Masciandaro, Pansini and Quintyn (2013) reported that during normal times, the governance of public sectors would usually seek greater stability but vice versa in case of crises. Chan and Milne (2015) have used a simple liquidity-modeling framework and found a link between bank competition and financial stability. Furthermore, traditionally greater concentration in banking promotes and discourages bank risk-taking. Cocriş and Nucu (2013) investigated the impact of monetary policy on financial stability by using a Structural Vector Autoregressive model from 2003 to 2006. They claimed that along with a traditional role in low inflation, central bank should play an upfront role in financial stability; however, to define and measure financial stability regarding the exchange rate, changes in share prices and bank loan-deposit ratio is difficult as a proxy. In their study, they also take short-term interest rate as the monetary policy instrument. They concluded that due to financial and economic crisis, financial stability becomes more important for central banks. Furthermore, a stable financial system is essential for efficient transmission of monetary policy. There is a need to go beyond monetary policy and they agree with Jarocinski's (2010) findings that the interest rate is an excellent instrument for intervention and that by using this the central bank can control household and agent excessive borrowings.

The financial stability issue requires a comprehensive financial system analysis that would include financial institutions, financial markets, macro economy, and

infrastructure. Due to many complex connections between the functioning of financial markets and settlement systems, there is no generally accepted measure of financial stability, which shows the different impact on real economic activity. There is a lot of empirical literature available to discuss the financial stability issue and regulatory governance as important determinates of financial stability. However, the research on the relationship between financial stability and regulatory governance is rare in multiple countries and uses unique survey data. Most of the studies use financial stability and regulatory governance as one variable, and hence in-depth analysis is missing. The majority of studies consider some of the regulatory dimensions as the proxy of regulatory governance. This created a need for a comprehensive and detailed survey of the multifaceted financial stability concept and regulatory governance in index form. The role of regulatory governance index in financial stability index along with macroeconomic conditions, banking structure, and economic freedom has not been discussed earlier. Formation of an index of financial stability and regulatory governance helps to reduce biases in the selection of limited variables and to test relationship among them. By above-cited literature, research hypothesis can be developed as follow;

H₁: Regulatory governance improves financial stability

H₂: Central Bank Independence improves financial stability

H₃: Central Bank Accountability improves financial stability

H₄: Political central bank independence improves financial stability

H₅: Economic central bank independence improves financial stability

H₆: Supervisory independence and accountability enhance financial stability

H₇: Strength of external audit improves financial stability

3. Research Methodology

The study is designed to examine the regulatory governance role of banks in financial stability in selected 55 countries. The source of information (data) followed in this study focuses on positivism philosophy (supposed that only correct knowledge is trustworthy) and deductive methodology. The authors developed the regulatory governance index (RGI) and financial stability index (FSI) in this study by following Mohr and Wagner (2013) and used cross-sectional data from the 55 selected countries. Following the existing literature and according to the nature of the data, the study uses ordinary least square method for estimating

the regulatory governance role in improving the financial stability in selected countries. Financial stability used as a dependent variable while regulatory governance and different dimension of regulatory governance are used as independent variables in the specified model. Along with the regulatory governance in the model, some control variables, namely, macroeconomic conditions, banking structure, and economic freedom were also included as explanatory variables to avoid the omitted bias of potential variables.

Financial stability is a multidimensional concept and thus the index is constructed using six indicators (capital adequacy, non-performing loans/total loans (negative expected sign), capital to the assets ratio, bank provisions to non-performing loans, return on asset, and return on equity as a financial soundness indicator by giving equal weights suggested by Kocisova (2015) using data from the Global Financial stability Report (2018). Žunić, Kozarić and Žunić Dželihodžić (2021) claimed that link exists between economic situation of a country and non-performing loans. The quality of the loans plays an important role in business stability and overall success of the business. Drakos and Malandrakis (2021) found that total capital ratio is not crisis insensitive while leverage ratio is crisis-insensitive. Regulatory governance is comprised of six different dimensions, including the central bank independence index, central bank accountability, and index of the strength of external audit, index of economic central bank independence, index of supervisory independence and accountability and index of political central bank independence. In the index, all the indicators are given equal weights in line with Morales and Estrada (2010). By using the normalization process in line with Morris (2010), this study data is normalized from the following formula.

$$(I) = \frac{I - \min(I)}{\max(I) - \min(I)}$$

The independent variable is the regulatory governance index, which is comprised of six different categories, and data is collected from different sources. The index of supervisory independence is an indicator which measures the supervisory independence degree and index of supervisory accountability, which refers to the degree of supervisory accountability taken from Masciandaro, Pansini and Quintyn (2008). The degree of independence of central bank is measured as an index of political central bank independence, and fourth, index of economic central bank independence, which measures the degree of independence of central bank, is collected from Arnone, Laurens, Segalotto and Sommer (2009). The index of supervisory accountability and independence is taken from Barth, Caprio and Levine (2006). The questions taken from here are: 5.5, 11.7.1, 12.2, 12.2.1, 12.2.2, 12.2.3; if yes=1, otherwise=0; 12.10.; if yes=0, and otherwise=1. The higher value

indicates higher central bank independence and accountability. The index of external audit strength is reported on questions also collected from Barth, Caprio and Levine namely 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7; yes=1 and no=0. The higher value indicates better strength of external audit.

Financial stability is not only dependent on regulatory governance, but also many other factors affect financial stability; therefore, the role of control variables becomes very important. Three control variables, namely macroeconomic condition, bank structure, and economic freedom are taken in the model to avoid the omitted variable bias. Macroeconomic condition was measured by using the real interest rate (Annual percentage change) and the date was collected from the World Bank databases. Banking Structure is measured through bank concentration by taking the three largest banks' assets/total banking sector assets obtained from the database of World Bank' Financial Structure and Development. Economic freedom is measured through the control of corruption, and this data is sourced from world Governance Indicators (WGI), World Bank.

With the help of the existing literature, the study designs the following econometric equation to capture the role of regulatory governance on financial stability and test the relevant hypotheses.

$$FS_i = \alpha + \beta_1 RGI_i + \beta_2 MC_i + \beta_3 BS_i + \beta_4 EF_i + \mu \quad (1)$$

Where FS_i represents the financial stability in specified countries, RGI_i is the regulatory governance index in each country, MC_i is the macroeconomic condition in the country, BS_i is the banking structure of the specified country and EF_i is the economic freedom in each country. α is the constant and β_1 , β_2 , β_3 and β_4 are the coefficients to be estimated; i represents country and μ is the error term that captures the effect of all other exogenous factors on output financial stability. The same equation also employs for the estimation of the impact of the individual component of regulatory governance on financial stability. The procedure to run the model by taking all components of regulatory governance at the same time instead of regulatory governance in the equation is as follows:

$$FS_i = \alpha + \beta_1 Ind_i + \beta_2 Acc_i + \beta_3 PCBI_i + \beta_4 ECBI_i + \beta_5 SIA_i + \beta_6 SEA_i + \beta_7 MC_i + \beta_8 BS_i + \beta_9 EF_i + \mu \quad (2)$$

Where Ind represents independence, Acc is the accountability, $PCBI$ is political central bank independence, $ECBI$ is the economic central bank independence, SIA is the supervisory independence and accountability, and SEA is the strength of external audit.

4. Results and Discussion

The results presented in Table 1 indicate that data of the variables used in the study are normally distributed. The mean value of financial stability is lower as compared to average value of regulatory governance in the estimated results. The macroeconomic condition (represented by the real interest rate) has a high average, signifying that selected countries have a higher average real interest rate. The mean value of banking structure (proxy through banks concentration) is high which shows that countries chosen still have a high degree of concentration in their banking sectors. Similarly, the mean value of economic freedom (represented by control of corruption) is also high.

Table 1: Descriptive Statistics

Variables	Mean
Financial Stability	0.26
Regulatory Governance	0.60
Bank concentration	0.57
Control of corruption	0.52
Political stability	0.63
GDP growth volatility	0.53
Regulatory quality	0.64
Voice and accountability	0.68
Inflation	0.11
Deposit rate volatility	0.02
Real interest rate	0.16

Source: Authors' calculations

The results of correlation analysis indicate that there is a strong relationship between financial stability and regulatory governance, macroeconomic condition, banking structure, and economic freedom. The correlation coefficient of financial stability with regulatory governance is higher as compared to other variables. This shows that regulatory governance is essential and has a significant contribution in boosting financial stability in the selected countries.

Table 2: Results of correlation between Financial Stability and Regulatory Governance

	FSI	RG	BC	CC	PS	GDP	RQ	VA	INF	DV	RIR
Financial Stability	1.00	0.27	0.08	-0.25	-0.11	-0.02	-0.07	-0.09	0.04	-0.03	0.28
Regulatory Governance	0.27	1.00	0.19	0.27	0.39	-0.34	0.36	0.38	0.06	-0.07	-0.24
Bank concentration	0.08	0.19	1.00	0.36	0.31	0.09	0.40	0.41	0.10	0.00	-0.24
Control of corruption	-0.25	0.27	0.36	1.00	0.79	-0.41	0.93	0.89	-0.16	-0.16	-0.34
Political stability	-0.11	0.39	0.31	0.79	1.00	-0.28	0.81	0.80	-0.19	-0.10	-0.26
GDP growth volatility	-0.02	-0.34	0.09	-0.41	-0.28	1.00	-0.36	-0.35	0.16	0.07	0.25
Regulatory quality	-0.07	0.36	0.40	0.93	0.81	-0.36	1.00	0.94	-0.16	-0.23	-0.36
Voice and accountability	-0.09	0.38	0.41	0.89	0.80	-0.35	0.94	1.00	-0.19	-0.14	-0.31
Inflation	0.04	0.06	0.10	-0.16	-0.19	0.16	-0.16	-0.19	1.00	-0.02	0.05
Deposit rate volatility	-0.03	-0.07	0.00	-0.16	-0.10	0.07	-0.23	-0.14	-0.02	1.00	0.11
Real interest rate	0.28	-0.24	-0.24	-0.34	-0.26	0.25	-0.36	-0.31	0.05	0.11	1.00

Source: Authors' calculations

Further decomposition of regulatory governance into various components, the analyses show an individual impact of all components on financial stability is positive except for the strength of external audit, and supervisory independence and accountability. However, independence is highly correlated with financial stability compared to other components of regulatory governance. Besides, the results in Table 3 explain that independence, accountability, political central bank independence, and economic central bank independence are positively correlated with financial stability. This signifies that independence, political central bank independence, economic central bank independence, and accountability are essential in order to accelerate financial stability in the selected countries.

Following the existing literature and according to the nature of data, the study used the ordinary least square method to estimate the impact of regulatory governance on financial stability. The estimated results in Table 4 show that the coefficient value of regulatory governance is positive and statistically significant, implying that regulatory governance has a considerable influence on financial stability in the selected countries. However, with further decomposition, the analyses of the high- and low- and middle-income countries showed that the coefficient value of regulatory governance is negative and statistically insignificant in the case of high-income countries. This signifies that regulatory governance is the crucial determinant of financial stability in low- and middle-income countries. In addition, the results show that bank concentration has a positive and significant influence on financial stability in all three groups of countries. Similarly, the results indicate that the regulatory quality and real interest rate have a significant and positive impact on financial stability in all types of coun-

tries. The findings further explicate that the control of corruption has an adverse effect on financial stability. However, the control of corruption has a greater effect on financial stability in high-income countries as compared to low- and middle-income countries. Furthermore, the estimated results confirm that political stability has a negative effect on financial stability but statistically insignificant in all three groups of countries. Likewise, GDP growth volatility has an adverse impact on financial stability in all types of countries. However, the impact of GDP growth volatility is statistically significant only in high-income countries. Additionally, the results show that the coefficient values of voice and accountability, inflation, and deposit rate volatility are statistically insignificant in all three types of countries. Additionally, the results of various diagnostic tests are also up to mark, and residual of the equation satisfied the standard assumption. Overall, the results suggest that banking structure has a positive impact on financial stability while economic freedom hurts the financial stability of the selected countries. Mostly, the results suggest that regulatory governance is essential for accelerating the financial stability in the selected countries.

Table 3: Results of the Ordinary Least Square method

Variable	Full Sample Model	High Income Countries	Low and Middle Income Countries
Constant	0.09 (1.0)	0.17 (1.99)***	0.07 (0.72)
Regulatory Governance	0.22 (1.96)**	-0.11 (-1.20)	0.18 (2.68)***
Bank concentration	0.10 (1.82)*	0.13 (2.28)***	0.12 (2.22)**
Control of corruption	-0.52 (-4.31)***	-0.48 (-2.41)***	-0.33 (-1.90)**
Political stability	-0.04 (-0.37)	-0.01 (-0.08)	-0.06 (-0.48)
GDP growth volatility	-0.09 (-1.43)	-0.13 (-2.22)***	-0.09 (-1.48)
Regulatory quality	0.61 (2.59)***	0.58 (1.82)**	0.51 (1.72)**
Voice and accountability	-0.17 (-0.56)	-0.07 (-0.20)	-0.07 (-0.20)
Inflation	-0.04 (-0.36)	-0.01 (-0.10)	-0.05 (-0.43)
Deposit rate volatility	0.00 (0.01)	-0.01 (-0.26)	-0.02 (-0.40)
Real interest rate	0.27 (3.14)**	0.24 (2.59)***	0.25 (2.77)***
R-squared	0.45	0.42	0.48
Adjusted R-squared	0.30	0.27	0.34
F-statistic	2.97	2.73	3.39
Prob (F-statistic)	0.01	0.01	0.00
Prob (Wald F-statistic)	0.00	9.49	8.13
Wald F-statistic	7.14	0.00	0.00
Durbin-Watson stat	1.91	1.61	1.73

Source: Authors' calculations

Table 4: Results of dimensions of regulatory governance on financial stability

Variable	Full Sample Model	High Income Countries Sample	Low and Middle Income Countries Sample
Constant	0.46 (3.72)***	0.53 (5.64)***	0.39 (3.62)***
Independence	0.12 (1.76)**	0.11 (1.43)	0.10 (1.06)
Accountability	0.16 (1.57)	0.18 (1.87)**	-0.11 (-1.38)
Political central bank independence	-0.11 (-1.98)**	-0.12 (-2.09)**	0.17 (1.70)*
Economic central bank independence	0.02 (0.41)	0.05 (0.65)	-0.18 (-2.72)***
Supervisory independence and accountability	-0.20 (-1.73)*	-0.29 (-2.4)***	-0.30 (-1.27)
The strength of external audit	0.08 (0.97)	0.02 (0.22)	0.33 (2.06)***
Bank concentration	0.14 (2.38)**	0.15 (2.49)***	0.12 (1.78)**
Control of corruption	-0.32 (-3.80)***	-0.28 (-1.08)	0.01 (0.06)
Political stability	0.26 (1.28)	0.22 (1.25)	0.16 (0.85)
GDP growth volatility	-0.21 (-3.77)***	-0.19 (-2.58)***	-0.10 (-1.48)
Regulatory quality	0.65 (2.48)***	0.62 (2.80)***	0.75 (3.91)***
Voice and accountability	-0.91 (3.51)***	-0.89 (-3.82)***	-1.09 (-3.38)***
Inflation	-0.09 (-1.00)	-0.08 (-0.78)	-0.10 (-1.32)
Deposit rate volatility	1.79 (0.57)	1.15 (0.44)	3.57 (1.36)
Real interest rate	0.11 (0.39)	0.08 (0.34)	-0.04 (-0.16)
R-squared	0.72	0.74	0.75
Adjusted R-squared	0.52	0.56	0.57
F-statistic	3.62	4.01	4.16
Prob (F-statistic)	0.00	0.00	0.00
Wald F-statistic	18.87	9.96	19.34
Prob (Wald F-statistic)	0.00	0.00	0.00
Durbin-Watson stat	1.82	1.93	1.88

Source: Authors' calculations

This study further estimates the impact of six components of regulatory governance including central bank accountability, central bank independence, economic central bank independence, independence of supervisory and accountability, political central bank independence and strength of external audit on financial stability. The results show that central bank independence, central, and economic central bank independence have a positive and statistically significant influence on the financial stability of selected countries. However, the political central bank's independence, supervisory independence, accountability, and strength of external audit are statistically insignificant. The results further indicate that

control variables, namely, macroeconomic condition and banking structure have also positive and significant influence on the financial stability in the presence of various components of regulatory governance. However, economic freedom has a negative and significant effect of financial stability in selected countries. To summarize the discussion, the results of ordinary least square method in both cases supported the primary hypothesis of the study that regulatory governance and individual dimension of regulatory governance improve the financial stability in selected countries.

5. Conclusion and Policy Implications

This study focused on investigating the role of regulatory governance and various dimensions of regulatory governance on financial stability in the selected countries. To achieve the primary objective of the study, the authors developed the regulatory governance index (RGI) and financial stability index (FSI) for the selected countries. The study employed the ordinary least square method on the cross-sectional data from 55 selected countries. In the estimated model, financial stability is used as a dependent variable while regulatory governance and different dimension are deployed as independent variables.

Along with the regulatory governance, some control variables, namely, macroeconomic conditions, banking structure, and economic freedom were also included in the model to avoid the omitted bias of potential variables. Financial stability is a multidimensional concept, so the index is constructed using six indicators (capital adequacy, non-performing loans/total loans, capital to the assets ratio, bank provisions to non-performing loans, return on asset, and return on equity) as a financial soundness indicator giving equal weights. Regulatory governance is comprised of six different dimensions, including the index of supervised independence, index of the strength of external audit, index of political central bank independence, index of supervisory accountability, economic central bank independence, and accountability index.

The results of the correlation analysis showed that regulatory governance and various indicators of regulatory governance are positively correlated with financial stability in the selected countries. Additionally, the results based on the ordinary least square method clarified that regulatory governance has a positive and significant influence on financial stability in selected countries. The findings also verified that banking structure and macroeconomic conditions have a positive and significant effect on financial stability in the selected countries. Concerning various dimensions of regulatory governance, the study found that central bank

independence and economic central bank independence have a positive and significant impact on financial stability in the selected countries, whereas, political central bank independence, supervisory independence and accountability, and external audit strength are statistically insignificant. Finally, the study concludes that regulatory governance and individual dimension of regulatory governance played the most significant role in improving financial stability in the selected countries. Also, better regulatory governance system can contribute to high efficiency and financial stability in the banking sectors of these countries. Regulators like central banks should focus on improving regulatory governance to maintain financial stability in the banking sector and to achieve stability in macroeconomic conditions.

References

1. Akram, F., Bardsen, G. & Lindquist, K. G. (2007)., Pursuing financial stability under an inflation-targeting regime. *Annals of Finance*, 3: 131-53.
2. Arnold, I. J. M. (1999)., The third leg of the stool: Financial stability as a prerequisite for EMU, *WeltwirtschaftlichesArchiv*, Volume 135, Issue 2, pp 280-305
3. Arnone, M., Laurens, B.J, Segalotto, J.-F. and Sommer, M. (2009)., Central Bank Autonomy: Lessons from Global Trends, *IMF Staff Papers*, vol. 56, No.2, pp. 263-296.
4. Barth, J.R., Caprio, G. & Levine, R. (2006), Rethinking Bank Regulation – Till Angels Govern. Cambridge University Press.
5. Chan, K. K. & Milne, A. (2015)., A theoretical comparison of banking Structures, *Proceedings of the Australasian Conference on Business and Social Sciences 2015*, Sydney (in partnership with The Journal of Selected Areas)
6. Cocriş, V. and Nucu, A. E., (2013)., Interest rate channel in Romania: assessing the effective transmission of monetary policy impulses to inflation and economic growth. *Theoretical and Applied Economics*, 18(2 (579)), pp. 37-50.
7. Cornand, C. and Gimet, C. (2012)., The 2007-2008 financial crisis: Is there evidence of disaster myopia?. *Emerging Markets Review*, 13 (3), pp. 301-315.
8. Das, U.S., Quintyn, M. and K. Chenard, (2004). Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis, *IMF Working Paper, WP/04/89*,
9. De Haan, J. and Vlahu, R. (2015). Corporate governance of banks: a survey. *Journal of Economic Surveys*, doi:10.1111/joes.12101
10. Drakos, K. and Malandrakis, I., (2021)., Global Versus Non-Global Banks: A Capital Ratios-Based Analysis, *Journal of Central Banking Theory and Practice*, 2, pp. 5-22
11. Elahi, K. Q. (2009)., UNDP on good governance, *International Journal of Social Economics*, Vol. 36 Iss: 12, pp.1167 – 1180
12. Global Financial Stability Report (2018), Chapter two: Regulatory Reform 10 Years After The Global Financial Crisis: Looking Back, Looking Forward
13. Houben, A., Kakes, J. and Schinasi, G., (2004)., Towards a framework for financial stability, *IMF Working Paper, WP/04/101*
14. Jarocinski, M. (2010). Responses To Monetary Policy Shocks In The East And The West Of Europe A Comparison Working Paper Series NO 970
15. Jassaud, N., (2014). Reforming the Corporate Governance of Italian Banks, *International Monetary Fund WP/14/181*

16. Kaufmann, D., Kraay, A., & Massimo, M., (2010)., The Worldwide Governance Indicators: Methodology and Analytical Issues, *World Bank Policy Research Working Paper* No. 5430, Available at SSRN: <https://ssrn.com/abstract=1682130>
17. Keynes, J. M. (1936). *The General Theory of Employment, Interest, and Money*. New York
18. Kim, J. & Kim, Y.C., (2014)., Financial crisis and a transmission mechanism of external shocks: The signaling role of the Korean Monetary Stabilization Bond, *Journal of Financial Stability*, Volume 9, Issue 4, Pages 682–694
19. Kocisova, K. (2016). Banking Stability Index: A cross-country study. *Proceedings of the 15th International Conference on Finance and Banking*. Opava, pp. 197-208.
20. KPMG, (2019)., Ten key challenges of the regulator in 2019. Report retrieved on 21-Jan-2019. <https://assets.kpmg/content/dam/kpmg/us/pdf/2018/12/ten-key-regulatory-challenges-pov-v5-web.pdf>
21. Laeven, L., and Levine, R. (2009).Corporate governance, regulation, and bank risk-taking. *Journal of Financial Economics*, 93(2): 259–275.
22. Levine, R. (2012). *The Governance of Financial Regulation: Reform Lessons from the Recent Crisis*. Conference paper
23. Masciandaro, D., R. V. Pansini, and M. Quintyn (2013). The Economic Crisis: Did Financial Supervision Matter? *IMF Working Paper* WP/11/261.
24. Minsky, H. P. (1985). The Financial Instability Hypothesis: A Restatement, in Arestis and Skouras eds., *Post Keynesian Economic Theory*.
25. Mohr, B. and Wagner, H. (2013). A Structural Approach to Financial Stability: On the Beneficial Role of Regulatory Governance, Available at SSRN
26. Morales, M.A. and Estrada, D., (2010). A financial stability index for Colombia, *Annals of Finance*, Volume 6, Issue 4, pp 555-581
27. Morris, V.C. (2010). Measuring and Forecasting Financial Stability: The Composition of an Aggregate Financial Stability Index for Jamaica, *Working Paper*.
28. Oosterloo, S. & de Haan, J, (2003), “A Survey of International Frameworks for Financial Stability”, *Occasional Studies* Vol 1/Nr 4, De Nederlandsche Bank, Amsterdam
29. Pisano, U., Martinuzzi, A. & Bruckner, B. (2012). The Financial Sector and Sustainable Development: Logics, principles and actors, *ESDN Quarterly Report # 27*, European Sustainable Development Network (ESDN)
30. Quintyn, M. (2007). Governance of Financial Supervisors and its Effects - a Stocktaking Exercise, *SUERF Studies*, SUERF - The European Money and Finance Forum, number 2007/4.

31. Schwarcz, S.L. (2019). Systematic Regulation of Systemic Risk, *Wisconsin Law Review*, Forthcoming, Duke Law School Public Law & Legal Theory Series No. 2018-60
32. Sharma, A., & Kaushik, V., (2008)., Assessment of Entrepreneurial Profile of Rural Women, *Journal of Community Mobilization and Sustainable Development*, Vol. 3, Issue II, PP 1-8.
33. Sivakumar, N. (2011)., Management of financial market scandals – regulatory and values-based approaches, *Humanomics*, Vol. 27, Iss: 3, pp.153 – 165
34. Thakor, A.V, (2018)., Post-crisis regulatory reform in banking: Address insolvency risk, not illiquidity, *Journal of Financial Stability*, Volume 37, Pages 107-111, <https://doi.org/10.1016/j.jfs.2018.03.009>
35. Thorsten B., Asli, D. & Ross, L., (2000)., A New Database on Financial Development and Structure, *World Bank Economic Review*, 14, 597–605. (An earlier version was issued as World Bank Policy Research Working Paper 2146.)
36. Vučinić, M. (2020)., Fintech and Financial Stability Potential Influence of FinTech on Financial Stability, Risks and Benefits, *Journal of Central Banking Theory and Practice*, 2, pp. 43-66, DOI: [10.2478/jcbtp-2020-0013](https://doi.org/10.2478/jcbtp-2020-0013)
37. Žunić, A., Kozarić, K., Žunić Dželihodžić, E., (2021). Non-Performing Loan Determinants and Impact of COVID-19: Case of Bosnia and Herzegovina, *Journal of Central Banking Theory and Practice*, 3, pp. 5-22, DOI: [10.2478/jcbtp-2021-0021](https://doi.org/10.2478/jcbtp-2021-0021)

Appendix A: List of Countries (World Bank Classification)

Income group	Country name
High income	Australia, Austria, Bahamas, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom
Upper middle income	Chile, Czech Rep., Estonia, Hungary, Latvia, Mauritius, Mexico, Poland, Trinidad & Tobago
Lower middle income	Armenia, Brazil, Bulgaria, China, Colombia, Ecuador, Egypt, El Salvador, Guatemala, Morocco, Nicaragua, Peru, Philippines, South Africa, Sri Lanka, Tunisia, Turkey
Low income	India, Indonesia, Nigeria, Uganda, Zambia