The Causal Relationship between Financial Development, Financial Globalization and National Savings in Pakistan

Muhammad Luqman[1], Ihtisham Ul Haq[1*], Muhammad Ishtiaq[2] & Rimsha Shabir[1]

[1] Department of Economics, Kohat University of Science and Technology, Kohat, Pakistan
2 School of Economics and Management, Beijing University of Technology, Beijing, China

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ABSTRACT

Financial globalization has a role in transmitting information within financial markets and helps in financial development. Additionally, financial globalization facilitates risk diversification alleviates the negative consequences of economic recessions, enabling nations to engage in international borrowing and lending activities, thus stabilizing income, consumption, investment and savings levels. This research study analyzes the causal nexus between financial development, financial Globalization and national savings in Pakistan. Co-integration test indicates co-integration vector henceforth, there is relationship between variables in the long run. The causal relation is determined through vector error correction mechanism and it is found that there is long run bidirectional causality between financial development, financial globalization and national savings in Pakistan. This study recommends that monetary authorities in Pakistan to encourage financial inclusion as the ratio of account holders in financial sector is very low. This will encourage documented economy and savings will be channelized to productive sectors. Likewise, financial development up gradation with par with international standards will not only encourage domestic savings but also help in financial globalization.

1. INTRODUCTION

Financial globalization has a role in transmitting information within financial markets and promoting the development of more advanced financial systems in nations that partake in this process. The financial systems are compelled by external economic pressures and demand to disseminate all accessible information, which may result in the incorporation of global best practices and enhanced

Corresponding author: Ihtisham Ul Haq, Department of Economics, Kohat University of Science and Technology, Kohat, Pakistan.

E-mail: ihtisham@kust.edu.pk

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corporate governance. This phenomenon also facilitates risk diversification, as both domestic and international institutions can distribute risks over many markets, encompassing both local and foreign exchange markets (Garcia, 2012). Consequently, this process alleviates the negative consequences of economic recessions, enabling nations to engage in international borrowing and lending activities, thus stabilizing income, consumption, and investment levels. Furthermore, the unimpeded movement of financial resources facilitates the mobilization of global capital and the accumulation of savings, as domestic savings are driven to seek higher returns in international markets due to heightened competition (Gulcemal, 2021).

Moreover, financial globalization enhances international transactions and interactions by reducing transaction costs and fostering linkages between the financial sector and the broader global economy. Nevertheless, it is crucial to recognize that financial globalization also brings risks in addition to its advantages. Although there is not necessarily

a direct relationship between rapid economic growth and significant foreign capital inflows (Kose et al., 2007), developing countries have heightened levels of uncertainty, which can be further intensified when they engage in risk-sharing activities. Incorporating capital stocks within this process can impact the allocation of risk across nations, resulting in capital outflows and diminished production in countries that are more susceptible to risk. This occurs as precautionary reserves from these nations are redirected towards more stable economies.

According to the theory, the development of financial systems in emerging or lower-income nations would open up several opportunities and tools to help mobilize domestic savings (Mavrotas, 2008). The existence of financial institutions and the availability of various financial instruments, according to Jha et al. (2009), contribute to encouraging higher savings. Additionally, studies by Kelly and Mavrotas (2008) and Muradoglu and Taskin (1996) show a positive association between financial industry and savings in African nations. The effectiveness and expansion of the financial sector are vital in driving overall success. The complex interplay between financial development and financial globalization becomes apparent through how a growing financial sector facilitates more integration and impacts savings rates.

Nevertheless, the precise relationship between financial development, financial globalization, and savings remains ambiguous. The objective of this study is to fill the existing research gap by inspecting the causal association between these variables within the context of Pakistan. This research seeks to contribute distinctively to the current body of knowledge by exploring an uncharted area. The importance of this study rests in its ability to add significant knowledge and insights to the corpus of existing research in the area. The results of this study have important ramifications for policymakers, academics, and the general economy. This study examines the interrelationships between financial development, globalization, and savings in order to provide crucial insights into Pakistan's economic stability and growth potential. Understanding how financial growth and globalization affect savings rates deeply is essential to developing effective strategies and policies that support sustained economic prosperity. The results of this study may be useful in helping policymakers develop strategies for enhancing financial integration, enhancing the efficiency of the financial system, and encouraging higher savings rates in Pakistan.

The rest of research paper is structured in the following manner. Literature review and research methodology are discussed in second and third section respectively. Results interpretation and discussion is elaborated in fourth section while fifth section conclude this research paper.

2. LITERARTURE REVIEW

The allocation of capital and its impact on economic growth is significantly influenced by the level of financial development at different phases of development. During the early stages of economic development, individuals with excess savings mainly engage in financial markets to access financial services and reap associated advantages. As economies advance, the level of participation increases, hence leading to enhanced financial development (Kavya & Shijin, 2020). In an empirical study, Mojekwu and Ogbulu (2017) concluded that financial development plays an important role in enhancing national savings. Likewise, Muyambiri and Odhiambo (2017) studied the causal nexus between national savings, investment and financial development through vector error correction mechanism (VECM) and concluded that causality runs from national savings to financial development.

In recent years, there has been a notable increase in the scholarly and governmental interest surrounding the relationship between financial development and globalization (Balcilar et al., 2019). Contrary to popular belief, the correlation between extensive financial globalization and advanced financial systems is not direct. Instead, it is the result of the dissemination of best practices, enhanced corporate governance, and decreased information asymmetry that forms the foundation of this relationship (Garca, 2012; Kalemli-Ozcan et al., 2013).

In their study, Demetrio and Garcia (2012) examined the correlationbetween financial globalization and financial development in transitional economies. The results primarily demonstrate a favourable and significant correlation between financial globalization and financial development. Demetrio and Garcia (2012) documented positive nexus between financial growth and the level of financial globalization. Furthermore, they argue that specific control variables and inflation rates influence this relationship. In a time series study by Luo, et al. (2016) examined the association between commercial and financial openness and financial performance. The study's findings indicate that while commercial and financial openness positively affect financial performance. The study carried out by Muye and Muye (2017) revealed a positive and enduring association between globalization and financial development within the BRICS states.

Broner and Ventura (2016) suggest three possible consequences emerging from FG in their exploration using a theoretical framework. According to the first scenario, FG may cause a capital outflow, but how this will affect GDP and investment is still being determined. According to the second scenario, FG might draw capital inflows, boosting investment and growth. The final scenario demonstrates how FG may increase capital flow volatility and contribute to unstable financial markets. These distinct results depend on variables like the degree of economic development, domestic savings rates, and the calibre of institutional frameworks for their manifestation. Financial globalization has a crucial role in promoting the implementation of worldwide reporting and regulatory standards, facilitating cross-border economic transactions, and enabling the transfer of advanced technologies from industrialized to developing countries. This exchange also facilitates risk diversification by allowing institutions to distribute risks across local and international markets (Motelle & Biekpe, 2015). Facilitating money flow across international borders contributes to accumulating and mobilizing global savings (Gulcemal, 2021).

The literature discussed above highlight that the association between financial development and national savings is not unidirectional and these variables may affect each other. Same conclusion is true for the relationship between financial globalization and national savings. Likewise, same conclusion can be withdrawn from the literature that financial development and financial globalization can influence each other. Thus, the current study adds the nexus between financial development, financial globalization and national savings in Pakistan to existing literature.

3. METHODOLOGY

Stationarity holds significant importance in analysing time series data since several statistical techniques rely on the assumption of data stationarity. Stationarity refers to the property of a time series where its statistical characteristics remain constant and do not vary over time. The Augmented Dickey-Fuller (Dickey & Fuller, 1979) unit root test is a widely employed statistical technique in time series analysis to assess the stationarity of a given variable. The Augmented Dickey-Fuller (ADF) test is primarily concerned with identifying the presence of a unit root within a given time series. A unit root indicates that the data series adheres to a random walk model and does not demonstrate mean-reverting characteristics. In alternative terms, it implies that the variable exhibits non-stationarity and tends to deviate from a constant value as time progresses. The Augmented Dickey-Fuller (ADF) test is performed by regressing the variable of interest against its lagged values and additional possibly significant variables.

The examination generates a statistical measure, commonly called the test statistic. If the calculated test statistic is more than the critical values, it leads to the rejection of the null hypothesis, suggesting that the variable under consideration exhibits stationarity. The ADF test establishes the stationarity of variables, which serves as a fundamental prerequisite for precise modelling and forecasting in the field of time series analysis. The macroeconomics, finance, and allied fields that strongly emphasize understanding the long-term relationships between various variables frequently use the Johansen co-integration test (Johansen, 1988). A statistical procedure called the Johansen co-integration test is used to assess whether co-integration exists between various time series variables. Co-integration is the process of creating a long-lasting relationship between variables that are not stationary, showing that their combination leads to stationarity despite the non-stationarity of the separate variables.

The VECM is a robust analytical technique employed in time series analysis to model the interrelationships among numerous variables that display co-integration. *Co-integration* is a concept that suggests the existence of stable, long-term equilibrium relationships between non-stationary variables despite the presence of short-term oscillations. The VECM is a variant of the vector autoregressive (VAR) model specifically developed to handle co-integrated time series data. The model effectively encompasses the immediate fluctuations and the concurrent equilibrium connections between the variables. The VECM for the study at hand is depicted in Equation 1 to 3 below.

$$\Delta NS_t = \alpha_0 + \sum_{i=1}^m \alpha_i \Delta NS_{t-i} + \sum_{i=0}^m \alpha_1 \Delta FD_{t-i} + \sum_{i=0}^m \alpha_2 \Delta FG_{t-i} + \beta_1 NS_{t-1} + \beta_2 FD_{t-1} + \beta_3 FG_{t-1} + \delta_1 ECT + \varepsilon_t \ (1)$$

$$\Delta FD_t = \alpha_0 + \sum_{i=1}^m \alpha_i \Delta FD_{t-i} + \sum_{i=0}^m \alpha_1 \Delta NS_{t-i} + \sum_{i=0}^m \alpha_2 \Delta FG_{t-i} + \beta_1 NS_{t-1} + \beta_2 FD_{t-1} + \beta_3 FG_{t-1} + \delta_1 ECT + \varepsilon_t \ (2)$$

$$\Delta FG_t = \alpha_0 + \sum_{i=1}^m \alpha_i \Delta FG_{t-i} + \sum_{i=0}^m \alpha_1 \Delta NS_{t-i} + \sum_{i=0}^m \alpha_2 \Delta FD_{t-i} + \beta_1 NS_{t-1} + \beta_2 FD_{t-1} + \beta_3 FG_{t-1} + \delta_1 ECT + \varepsilon_t \ (3)$$

Whereas NS, FD and FG represents national savings, financial development and financial globalization respectively. Data for national savings and financial development index is gathered from World Bank online database. The index of financial globalization is taken from KOF Swiss Economic Institute online database. Besides, this study covers the period from 1980 to 2020 and this period is decided due to availability of the study.

4. RESULTS & FINDINGS

Correlation is a statistical metric that quantifies the strength and direction of the linear association between two variables. Table 1 presents the correlation matrix among NS, FD, and FG variables. The values presented in the table denote the correlation coefficients of the relationships between pairs of variables. The correlation coefficient between a variable and itself, represented by the diagonal elements, is consistently 1.00. This perfect correlation arises from the fact that the variable is being compared to itself. The variables NS and FD exhibit a positive association of 0.32. This finding suggests a modest positive correlation between NS and FD variables. If one variable increases, this will result in increase in the other variable, but with a moderate degree of correlation. The variables NS and FG exhibit a statistically significant positive correlation of 0.69. This observation implies a stronger positive linear correlation. When there is an increase in one of these variables, there is a notable tendency for the other variable to increase. The variables FD and FG exhibit a modest positive association of 0.34. This suggests a moderate linear relationship between the variables. When one variable increases, there is a tendency for other variable to increase, but with a moderate level of association.

Table 1
Correlation Matrix

Variable	NS	FD	FG
NS	1.00	--	--
FD	0.32	1.00	--
FG	0.69	0.34	1.00

The ADF test is used to discover the presence of a unit root in a time series. The ADF unit root test results for three variables, NS, FD, and FG, are displayed in the Table 2. Based on the above data, the variables exhibit stationarity at the first difference (I(1)). The notation "I(1)" denotes that the variable NS has been integrated into order 1, indicating that it is stationary after taking the first difference. The ADF test statistic of -5.86, computed at the first difference, exhibits a considerable deviation from the critical values. Consequently, we reject null hypothesis that postulates the existence of a unit root. This observation implies that the variable NS exhibits stationarity once the first difference is taken. Similar to the notation used in the NS framework, the term "I(1)" denotes that the variable FD is integrated of order one and exhibits stationarity when differenced once. The ADF test statistic of -9.05, computed at the first difference, exhibits a significant deviation from critical values. Thus, null hypothesis is rejected. This suggests that the variable FD exhibits stationarity once the first difference is taken.

Once again, the notation "I(1)" indicates that the variable FG is integrated of order one and exhibits stationarity when differenced once. The ADF test statistic, which is -7.20 when considering initial differences, exhibits a considerable deviation from the critical values. This observation suggests that FG exhibits stationarity once the first difference is taken. To summarize, the ADF unit root test outcomes reveal that the three variables exhibit integration of order 1 (I(1)) and attain stationarity at the first difference level. This implies that upon taking the first difference of the variables,

they demonstrate a stationary pattern and lack a unit root, which is favourable for numerous approaches employed in time series analysis.

Table 2
ADF Results

variable	At level	At first difference	Decision
NS	1.66	-5.86a	I(1)
FD	-2.74	-9.05a	I(1)
FG	-2.53	-7.20a	I(1)

[a] shows significance at one percent level

Table 3 is relevant to examining co-integration, a statistical technique used to identify long-term correlations among non-stationary variables in time series data. Co-integration is observed when a linear combination of non-stationary variables undergoes a transformation that results in a stationary state, indicating a long run relationship between them. The table presents findings from a co-integration analysis employing the Johansen co-integration test within the given context. The co-integration equation represents the number of co-integration vectors tested in the first column. The vectors represent the combinations of variables that result in coherent outcomes. The trace statistic is a test metric utilized in the examination of co-integration. The second column indicates the likelihood of having, at most, the designated number of co-integration vectors.

The presence of elevated trace statistics enhances the evidence supporting the phenomenon of co-integration. The crucial value corresponding to the trace statistic is provided in this context. If the computed trace statistic is greater than the crucial value, it indicates the presence of co-integration at the specified level. The max-eigen statistic is a metric used to evaluate co-integration, similar to the trace statistic. The focal point of analysis lies in the most significant eigenvalue present in the matrix utilized for the co-integration test. The crucial value associated with the maximum eigenvalue statistic is called the critical value (Max-Eigen). If the calculated max-eigen statistic exceeds the critical value, similar to the trace statistic, it suggests the existence of co-integration. In summary, the results presented in Table 4 suggest the presence of evidence supporting the existence of a single co-integration vector. These results suggest a single, persistent equilibrium relationship among the examined variables.

Table 3
Co-integration test Results

Co-integration equation	Trace statistic	Critical value	Max-Eigen Statistic	Critical value
None *	29.95	29.80	21.33	21.13
At most 1	8.63	15.50	7.66	14.26
At most 2	0.97	3.84	0.97	3.84

* indicates co-integration vector at five percent level of significance

The results of a VECM analysis in Pakistan are shown in Table 4. This analysis specifically looked at whether there were any short- and long-term causal links between the variables. In the VECM framework, the Wald-test (F-statistics) is used to assess causality in the short run, while the t-statistic is used to evaluate causality in the long run. According to the findings shown in Table 4, short-term

causal relationship between national savings, financial development, and financial globalization is not established. However, as there is a bidirectional causal relationship between the analysed variables in long run, so, a strong causal relationship between national savings, financial development, and financial globalization exits in Pakistan. If one compares the results of this study with past studies. Muyambiri and Odhiambo (2017) and Kavya and Shijin (2020) concluded that savings leads to financial development but the results of this study documented that national savings and financial development influence each other in case of Pakistan.

The results about financial development and financial globalization is same what is being concluded by Demetrio and Garcia (2012) that there is correlation between these variables. Besides, this study recommends policy measures on the findings of this study. Given that these policies will boost employment and income, our study advises using them to deal with inflation and unemployment uncertainty. The Pakistani monetary authorities must take action to promote financial inclusion because there are very few people with accounts in the country's financial sector. Savings will be directed to productive channels as a result, promoting a documented economy. The government may act to promote social capital so that it can improve financial inclusion because social capital can play a significant influence in this area. Similarly, upgrading financial development to worldwide norms can aid in financial globalization and stimulate domestic savings. Policy initiatives to promote financial globalization will boost Pakistan's financial development.

Table 4
Causality Results

	Short run causality (F-Stat.)			Long run causality
Variable	ΔNS	ΔFD	ΔFG	(t-Stat.)
ΔNS	--	0.7	0.93	-3.02a
ΔFD	0.5	--	0.66	-1.93b
ΔFG	1.84	1.02	--	-2.27a

[a] and [b] indicate significance at one & five percent level respectively

5. CONCLUSION & RECOMEMNDATIONS

Financial globalization has a role in transmitting information within financial markets and promoting the development of more advanced financial systems in nations that partake in this process. The financial systems are compelled by external economic pressures and demand to disseminate all accessible information, which may result in the incorporation of global best practices and enhanced corporate governance. This phenomenon also facilitates risk diversification, as both domestic and international institutions can distribute risks over many markets, encompassing both local and foreign exchange markets. Consequently, this process alleviates the negative consequences of economic recessions, enabling nations to engage in international borrowing and lending activities, thus stabilizing income, consumption, investment and savings levels. This research study studies the causal nexus between financial development, financial Globalization and national savings in Pakistan in context of time series study. All variables are integrated of order one whereas co-integration test affirmed the long run relationship between variables.

The causal relation is determined through vector error correction mechanism and it is found that there is long run bidirectional causality between financial development, financial globalization and national savings in Pakistan. This study recommends that sound macroeconomic policies especially to deal with uncertainty regarding inflation and unemployment as these policies will increase employment and income. Steps are required from monetary authorities in Pakistan to encourage financial inclusion as the ratio of account holders in financial sector is very low. This will encourage documented economy and savings will be channelized to productive sectors. Besides, Gamage et al. (2016) argued that social capital can play a vital role in financial inclusion, therefore government may take steps for social capital to enhance financial inclusion. Likewise, financial development up gradation with par with international standards will not only encourage domestic savings but also help in financial globalization. Whereas policy measures to encourage financial globalization will help the financial development in Pakistan.

Competing Interests

The authors did not declare any competing interest.

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