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RESDO

The Nexus between Financial Sector Development and Economic Growth: Evidence from Asian Countries

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Abstract

The financial sector plays a pivotal role in driving economic growth, serving as a catalyst for investment, innovation, and resource allocation. To delve into its significance within the context of Asian economies, this study empirically investigates its impact. Specifically, we examine and quantify the long-term relationship between financial development and economic growth across a sample of 12 Asian countries, utilizing data spanning a considerable time frame from 1970 to 2017. To capture this relationship comprehensively, we employ the Panel Autoregressive Distributed Lag (ARDL) model, a robust econometric approach suitable for heterogeneous panel data analysis. Unlike traditional models, Panel ARDL accounts for variations in slope and short-run parameters across countries, allowing for a more nuanced understanding of the relationship. Our findings reveal the presence of a long-term relationship between financial development and national income across the sampled Asian countries. This suggests that the evolution and expansion of the financial sector have significant implications for overall economic performance and growth trajectories in these nations. By shedding light on the dynamics between financial development and economic growth, our study contributes to a deeper understanding of the role played by the financial sector in shaping the economic landscape of Asian countries. These insights hold relevance for policymakers, economists, and stakeholders seeking to foster sustainable and inclusive economic development across the region.

Keywords: Financial Development, Economic Growth, Asian Economies
JEL Codes: O16, G21, E44, C23

1. INTRODUCTION

A robust and well-functioning financial system is widely recognized as a cornerstone of economic growth. By providing essential services such as credit allocation, risk management, and investment facilitation, a healthy financial system enables entrepreneurs and investors to capitalize on profitable opportunities while minimizing risks. Extensive literature supports the consensus that finance plays a pivotal role in driving economic growth and development. Studies have consistently shown that countries with efficient and well-developed financial systems tend to experience higher levels of economic growth and stability. This is because a sound financial system channels savings into productive investments, fosters innovation and entrepreneurship, and facilitates the efficient allocation of resources across sectors. Moreover, a healthy financial system promotes financial inclusion by providing access to financial services for individuals and businesses, thereby empowering them to participate more actively in economic activities and contribute to overall growth and development. A well-functioning financial system acts as a catalyst for economic progress, stimulating investment, innovation, and productivity, and ultimately fostering sustainable development and prosperity.

Empirical evidence from numerous studies consistently demonstrates a positive relationship between finance and economic growth. One of the pioneering efforts in this area was undertaken by Green, Wood, and Jovanovic in 1990, marking a significant milestone in understanding the impact of finance on economic development. Prior to their comprehensive analysis, many researchers, including Lucas in 1988, had downplayed the significance of finance in driving output growth. However, the findings of Green, Wood, and Jovanovic, along with subsequent research, have challenged these earlier assertions. The majority of the available literature now converges on the conclusion that finance indeed matters significantly for economic growth. Studies have shown that a well-functioning financial system, characterized by efficient intermediation, access to credit, and risk management mechanisms, plays a crucial role in fostering investment, innovation, and productivity enhancements across various sectors of the economy. This recognition of the importance of finance in driving economic growth has led to a paradigm shift in both academic research and policy discourse. Policymakers and economists increasingly acknowledge the critical role of finance in promoting sustainable development and prosperity. As a result, efforts to strengthen and enhance financial systems have become integral components of strategies aimed at fostering long-term economic growth and development. The empirical evidence overwhelmingly supports the idea that finance is a

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key determinant of economic growth. The pioneering work of Green, Wood, and Jovanovic, along with subsequent research, has reshaped our understanding of the relationship between finance and growth, underscoring the vital role that financial systems play in shaping the trajectory of economic development.

In previous research endeavors, scholars have dedicated significant efforts to unraveling the causal relationship between finance and economic growth, aiming to inform the development of more effective financial strategies. One notable contribution in this field was made by King and Levine in 1993. Through their seminal study, they shed light on the strong correlation between finance and output growth. Employing cross-sectional data from various countries, King and Levine conducted extensive analyses using ordinary least squares (OLS) estimation techniques. Their findings underscored the pivotal role of a well-organized and advanced financial sector in driving higher levels of economic growth. This implies that economies with more developed financial systems tend to experience greater output growth over time. The conclusions drawn by King and Levine have had significant implications for policymakers and economists alike. Their research has highlighted the importance of fostering a conducive environment for financial development, characterized by robust regulatory frameworks, efficient intermediation, and access to capital for businesses and individuals. By demonstrating the positive impact of finance on economic growth, King and Levine's work has provided valuable insights into the mechanisms through which financial systems contribute to overall prosperity and development. Their findings continue to inform discussions and strategies aimed at promoting sustainable economic growth worldwide.

Subsequent to earlier research, scholars continued to delve deeper into the intricate relationship between finance and economic growth, addressing endogeneity concerns within the financial sector. In a notable contribution, Jun (2012) extended this line of inquiry by examining the dynamics between finance and growth across 27 developing Asian economies. Utilizing a dataset spanning from 1960 to 2009, Jun employed sophisticated panel unit root tests to analyze real GDP alongside various measures of financial development. His study revealed a bi-directional causality between finance and output growth, indicating that the relationship between the two variables is mutually reinforcing. Building upon this foundation, the present paper seeks to further investigate the intricate relationship between finance and economic growth in selected Asian countries. By employing advanced estimation techniques on panel data, this study aims to provide deeper insights into how financial development influences economic growth dynamics within the region. Through rigorous analysis and robust methodology, this research endeavors to contribute to the ongoing discourse surrounding the role of finance in driving economic growth. By better understanding the mechanisms through which financial development impacts growth outcomes, policymakers and economists can formulate more effective strategies to foster sustainable and inclusive development across Asian economies.

2. LITERATURE REVIEW

In the landscape of economic literature during the 1960s, notable early contributions were made by scholars such as Goldsmith, Cameron, and Gerschenkron, who embarked on investigations into the link between finance and economic growth. Utilizing relatively crude econometric methods and case studies, these pioneers sought to diagnose the relationship between financial factors and output levels. While their efforts revealed rough associations between finance and economic performance, they fell short of providing a robust theoretical explanation for the observed causality. It was in the subsequent decade, the 1970s, that scholars McKinnon and Shaw made significant strides in this field by developing a theoretical framework that shed light on the growth-inducing effects of financial liberalization, particularly in comparison with the constraints imposed by financial repression. Their framework posited that financial liberalization could stimulate increased savings, thereby enhancing the efficiency of investment both vertically and horizontally. However, despite the theoretical appeal of McKinnon and Shaw's framework, empirical testing failed to provide unequivocal support for their views. Moreover, the framework struggled to account for the complexities of sustained economic growth processes, leaving certain aspects of the finance-growth relationship inadequately explained. Nonetheless, the pioneering efforts of McKinnon and Shaw laid the groundwork for subsequent research endeavors, prompting scholars to further refine theoretical models and empirical methodologies in order to deepen our understanding of the intricate dynamics between finance and economic growth. Through ongoing inquiry and rigorous analysis, researchers continue to strive towards elucidating the mechanisms through which financial systems impact economic development, thereby contributing to the advancement of knowledge in this critical area of study.

During the 1980s, a notable shift occurred towards market-based approaches to understanding the relationship between finance and economic growth. This shift was underpinned by two distinct strands of thought: microeconomic perspectives focused on market failures and macroeconomic perspectives influenced by neo-structuralist theories. However, despite the theoretical appeal of these approaches, empirical evidence yielded mixed results, with some studies supporting the link between finance and growth while others found inconclusive or even contradictory findings. In the subsequent decades, particularly in the last decade, research in this area has flourished, buoyed by increased availability of data and the development of sophisticated econometric techniques. This proliferation of research has allowed scholars to delve deeper into the complex dynamics underlying the finance-growth relationship, employing advanced methodologies to analyze large datasets spanning multiple countries and time periods. By harnessing the power of these enhanced analytical tools, researchers have been able to uncover nuanced insights into how financial systems impact economic development. From

exploring the role of financial intermediaries in allocating capital efficiently to investigating the transmission channels through which financial innovations influence productivity and innovation, the recent surge in research has enriched our understanding of the mechanisms driving economic growth. Furthermore, the availability of longitudinal data has enabled scholars to conduct longitudinal studies, tracking the evolution of financial systems and their effects on economic outcomes over time. This longitudinal perspective has provided valuable insights into the dynamics of financial development and its implications for long-term economic growth trajectories.

The prevailing belief in much of the literature on finance and economic growth suggests that financial development tends to follow output growth, rather than the other way around. However, there exists a considerable body of research seeking to challenge and scrutinize this belief. Christopoulos and Tsionas (2004), for instance, conducted a seminal study to investigate the long-term relationship between financial depth and economic growth. Employing panel unit root and cointegration tests on data from 10 developing countries, Christopoulos and Tsionas explored the dynamics between financial depth, measured as the extent of financial intermediation within an economy, and economic growth. Their findings provided valuable insights, revealing a unidirectional causality running from financial depth to economic growth. By demonstrating this one-way relationship, Christopoulos and Tsionas' study challenged the conventional wisdom and underscored the importance of considering the nuanced interactions between financial development and economic growth. Their research highlighted the potential role of financial intermediation in stimulating economic activity and fostering long-term growth trajectories in developing economies. Overall, Christopoulos and Tsionas (2004) contribute to a deeper understanding of the complex relationship between finance and economic growth, shedding light on the mechanisms through which financial systems can impact broader macroeconomic outcomes. Through rigorous empirical analysis and robust methodology, researchers continue to uncover new insights that inform policy decisions and shape our understanding of the dynamics driving economic development.

Loayza and Ranciere (2006) conducted a comprehensive analysis of the relationship between financial intermediation and output growth, examining both short and long-term dynamics. Leveraging cross-country panel data, they applied the pooled mean group estimator to rigorously quantify this relationship. Their study yielded intriguing findings that shed light on the nuanced interactions between financial intermediation and economic growth. The results of Loayza and Ranciere's analysis revealed a positive relationship between financial intermediation and output growth over the long term. This suggests that countries with more developed financial systems tend to experience higher rates of economic growth over extended periods. However, their study also uncovered a contrasting pattern in the short run, where they observed a negative relationship between financial intermediation and output growth. These findings challenged conventional wisdom and provided valuable insights into the complexities of the finance-growth nexus. By identifying differing relationships between financial intermediation and output growth over different time horizons, Loayza and Ranciere highlighted the dynamic nature of this relationship and the importance of considering temporal dynamics in empirical analyses. Furthermore, Loayza and Ranciere's study offered a theoretical framework to support their empirical findings, helping to reconcile contradictions observed in previous literature. By elucidating the underlying mechanisms driving the observed patterns, they provided a deeper understanding of how financial intermediation influences economic growth outcomes. Overall, Loayza and Ranciere's research significantly contributed to the literature on finance and economic growth, offering valuable insights and methodological innovations. Their study underscored the importance of considering both short and long-term dynamics in analyzing the relationship between financial intermediation and output growth, thereby enriching our understanding of this critical aspect of economic development.

In his study, Wadud (2009) delved into the long-term relationship between financial development and economic growth specifically focusing on South Asian countries. By analyzing data spanning from 1976 to 2008, Wadud employed a vector autoregressive (VAR) model to estimate this relationship. His investigation revealed a stable and significant relationship between financial development and economic growth in the South Asian context. Furthermore, Wadud's study extended beyond mere correlation to explore the direction of causality between financial development and economic growth. Employing Granger causality tests, he uncovered evidence suggesting that the causal relationship predominantly runs from financial development to economic growth. This finding implies that a well-developed financial sector can play a crucial role in stimulating economic expansion and fostering long-term growth trajectories in South Asian economies. By elucidating the causal directionality between financial development and economic growth, Wadud's research provided valuable insights into the underlying mechanisms driving the observed relationship. His findings underscored the importance of robust financial systems in facilitating economic progress and highlighted the potential for targeted policy interventions aimed at enhancing financial intermediation to spur broader economic development in South Asia. Overall, Wadud's study contributed to the growing body of literature on the finance-growth nexus, particularly within the context of South Asian economies. Through rigorous empirical analysis and sophisticated econometric techniques, his research shed light on the dynamic interactions between financial development and economic growth, offering valuable implications for policymakers and practitioners striving to promote sustainable economic development in the region.

Bangake and Eggoh (2009) undertook a comprehensive reassessment of the intricate relationship between financial development and economic growth using data from 71 countries. Their study aimed to address the contradictory findings present in the existing literature on this subject. Leveraging panel integration and cointegration techniques, they analyzed a

dataset spanning from 1960 to 2004 to uncover the underlying dynamics between financial development and economic growth. The key contribution of Bangake and Eggoh's study was the identification of bi-directional causality between financial development and economic growth, both at the global level and among various country groups within their sample. This finding challenged previous notions of a unidirectional relationship and highlighted the intricate feedback mechanisms between financial sector development and overall economic performance. By employing rigorous econometric techniques and a large cross-country dataset, Bangake and Eggoh provided robust evidence to support their conclusions regarding the causal dynamics between financial development and economic growth. Their findings underscored the importance of considering the nuanced interactions between these two variables and provided valuable insights for policymakers and researchers seeking to understand and promote sustainable economic development. Overall, Bangake and Eggoh's study significantly enriched our understanding of the complex relationship between financial development and economic growth, offering empirical evidence to reconcile conflicting findings in the existing literature and advancing theoretical frameworks in this important area of inquiry.

Rafindadi and Yosuf (2013) conducted an extensive analysis to gauge the relationship between economic growth and financial development across 38 Sub-Saharan African countries. Employing pooled mean group and mean group techniques, they sought to estimate the nature of this relationship using data spanning from 1980 to 2011. Their findings revealed significant and substantive effects of financial development on economic growth in both the short term and the long term for the countries under examination. This implies that the development of the financial sector plays a crucial role in fostering economic growth dynamics within Sub-Saharan Africa. By employing sophisticated econometric techniques and a comprehensive dataset covering a significant time period, Rafindadi and Yosuf's study provided robust empirical evidence to support their conclusions regarding the impact of financial development on economic growth in the region. Their findings hold important implications for policymakers and practitioners seeking to promote sustainable economic development in Sub-Saharan Africa by emphasizing the importance of fostering a vibrant and inclusive financial sector. Overall, Rafindadi and Yosuf's research contributed valuable insights into the dynamics of economic growth and financial development in Sub-Saharan Africa, highlighting the pivotal role of financial sector development in driving broader economic progress and development outcomes in the region.

Yeh, Huang, and Lin (2013) conducted a comprehensive assessment of the relationship between financial structure and economic growth, as well as its volatility, across 40 countries spanning the period from 1960 to 2009. Utilizing the pooled mean group estimator, they explored the intricate dynamics between financial structure and economic performance. Their findings unveiled a positive relationship between financial structure and economic growth, suggesting that economies with higher levels of market orientation may experience faster rates of economic expansion. However, they also noted a potential downside, indicating that these market-based economies could be more susceptible to economic fluctuations and volatility in the long run. Building upon the insights gleaned from Yeh, Huang, and Lin's study, our research aims to further investigate the relationship between financial structure and economic growth within the Asian region. By employing sophisticated estimation techniques and focusing specifically on the Asian context, we seek to contribute additional nuance and depth to the existing literature on this topic. Through our empirical analysis, we aim to shed light on the specific mechanisms through which financial structure influences economic growth and volatility in Asian economies. By enhancing our understanding of these dynamics, we can provide valuable insights for policymakers and practitioners seeking to foster sustainable and resilient economic development in the region.

3. METHODOLOGY
Based on extensive review of literature, the modeo for this study become as:

Y=f(FD)

Y = Gross domestic income (constant 2000 US$)

FD= Proxy for Financial Development

4. RESULTS AND DISCUSSIONS
The table 1 presents the results of unit root tests conducted on various variables, including Y, ΔY, FD, and ΔFD, using different statistical methods. For the LLC test, the variable Y shows a t-statistic of -1.47, indicating a lack of evidence to reject the null hypothesis of non-stationarity at conventional significance levels. However, for the ΔFD variable, the t-statistic of -6.68 suggests strong evidence to reject the null hypothesis, implying stationarity. Similarly, for the ΔCP variable, the t-statistic of 10.00 indicates stationarity. In contrast, for the IPS test, the variable Y exhibits a high t-statistic of 10.68, indicating strong evidence against the null hypothesis of a unit root and suggesting stationarity. On the other hand, the ΔY variable shows a t-statistic of -5.14, indicating evidence to reject the null hypothesis, implying stationarity. Moving to the MWADF and MWPP tests, both tests show significant t-statistics across all variables, suggesting evidence against the null hypothesis of a unit root and indicating stationarity. For instance, in the MWADF test, the variable Y exhibits a high t-statistic of 76.92, while in the MWPP test, the $\Delta M2$ variable shows a substantial t-statistic of 168.73, both suggesting stationarity. These results provide insights into the stationarity properties of the variables under consideration and are crucial for further analysis, such as time series modeling and forecasting. Overall, the unit root tests help ascertain whether

the variables are stationary or exhibit a unit root, which is essential for determining the appropriate econometric modeling approach.

Table 1: Unit Root Tests

	Y	ΔY	FD			ΔFD		
			M_3	M_2	CP	ΔM_3	ΔM_2	ΔCP
LLC	-1.47*	13.52	3.11	-6.68	-1.12	-3.30***	22.96	10.00
IPS	10.68	-5.14***	2.90	-2.29	-1.14	-7.09***	-5.10***	-3.03***
MWADF	76.92***	86.37***	9.48	36.83	25.87	113.18***	87.82***	55.52***
MWPP	7.15	168.73***	7.83	72.45	19.66	158.49***	147.39***	69.88***

The cointegration results presented in the table 1 offer a comprehensive understanding of the relationships between the variables examined in three distinct models. Model I showcases the significance of variable M3 in the long-run relationship, as evidenced by its coefficient estimate of 0.3199 with a p-value of 0.002. This suggests that M3 plays a crucial role in determining the equilibrium relationship among the variables under consideration. However, it's important to note that Model I excludes coefficients for M2 and CP, possibly indicating that these variables may not be as influential in this specific model specification. Conversely, Model II sheds light on the significance of M2, with a coefficient estimate of 1.3480 and a highly significant p-value of 0.000. This implies that M2 has a substantial impact on the long-run relationship between the variables, potentially indicating its importance in the economic context being studied. Similar to Model I, Model II does not include coefficients for M3 and CP, suggesting a different focus or emphasis in the model specification. In contrast, Model III introduces CP into the analysis and estimates its coefficient at 0.8393. Although the p-value for CP is 0.235, indicating a relatively weaker statistical significance compared to M3 and M2 in their respective models, it still provides valuable insights into the long-run relationship. Additionally, Model III excludes coefficients for M3 and M2, emphasizing the unique contribution of CP to the model's specification. Furthermore, the average convergence parameter (φi) estimates offer insights into the speed at which the system converges to its long-run equilibrium. While Model I and Model II both exhibit statistically significant estimates for φi, Model III presents a weaker significance, suggesting potential differences in the convergence dynamics across the models. Examining the short-run parameters, Model III estimates ΔCP with a statistically significant coefficient of 0.0136 and a p-value of 0.000. This suggests that changes in CP have a notable impact on short-run dynamics, further emphasizing its relevance in the economic context under investigation. Overall, these cointegration results contribute significantly to understanding the relationships between the variables studied, highlighting their statistical significance and providing insights into their long-run and short-run dynamics. However, further analysis and interpretation may be warranted to fully grasp the underlying economic mechanisms at play.

Table 2: Cointegration Results

	Model – I		Model – II		Model – III	
	Long Run Parameters					
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
M_3	0.3199	0.002	-	-	-	-
M_2	-	-	1.3480	0.000	-	-
CP	-	-	-	-	0.8393	0.235
	Average Convergence Parameter					
φ_i	-0.0182	0.014	0.0321	0.027	0.0005	0.873
	Short Run Parameters					
ΔM_3	0.0045	0.362	-	-	-	-
ΔM_2	-	-	0.5337	0.000	-	-
ΔCP	-	-	-	-	0.0136	0.000
Intercept	0.3666	0.011	2.5775	0.003	0.0639	0.015

Note: In parenthesis, p-values of parameters are given.
Source: Authors' estimates

Table 3: Estimation of Long-Run Cointegrating Vector

Dependent variable is Y and independent variables is M_3				
Technique	Coefficients	Standard Error	Statistics	p-value
POLS	0.0165	0.0016	10.55	0.000
FMOLS	0.0059	0.0031	1.92	0.056
DOLS	0.0068	0.0029	2.33	0.020
PMG	0.3199	0.1008	3.17	0.002

Table 3 provides a detailed insight into the estimation of the long-run cointegrating vector between the dependent variable Y and the independent variable M3. This analysis is crucial for understanding the underlying relationship and dynamics between these variables, which can have significant implications in various economic contexts. The first technique employed, Ordinary Least Squares (POLS), reveals a substantial coefficient of 0.0165, suggesting a strong long-term relationship between Y and M3. With a low standard error of 0.0016 and a high statistic of 10.55, the relationship is deemed highly statistically significant (p-value = 0.000). This robust statistical significance underscores the reliability of the estimation and the importance of considering this relationship in economic modeling and forecasting endeavors. Moving to the Fully Modified Ordinary Least Squares (FMOLS) technique, although the coefficient is smaller at 0.0059, it still indicates a positive relationship between Y and M3. However, the higher standard error of 0.0031 and the associated statistic of 1.92 raise some concerns regarding the statistical significance of the relationship, as indicated by the marginally higher p-value of 0.056. Despite this, FMOLS is valuable for addressing endogeneity issues and providing more reliable estimates, highlighting the complexity of the relationship under investigation. Dynamic Ordinary Least Squares (DOLS) estimation offers further insights, with a coefficient of 0.0068 and a standard error of 0.0029. The statistic of 2.33 and the associated p-value of 0.020 indicate a statistically significant relationship, albeit to a lesser extent than POLS. However, DOLS is advantageous for addressing serial correlation and endogeneity concerns, contributing to the robustness of the estimation results. Lastly, the Panel Mean Group (PMG) technique yields a notably higher coefficient of 0.3199, suggesting a substantial long-term relationship between Y and M3. Despite the higher standard error of 0.1008, the statistic of 3.17 and the associated p-value of 0.002 reaffirm the statistical significance of the relationship. PMG's ability to incorporate panel data and account for heterogeneity across units further strengthens the credibility of the estimation results. In short, Table 3 provides a comprehensive analysis of the long-run cointegrating vector between Y and M3, highlighting the importance of employing multiple estimation techniques to obtain reliable and robust insights into economic relationships. These findings have significant implications for economic theory, policy formulation, and practical decision-making processes.

5. CONCLUSIONS

In this paper, we examine the intricate relationship between economic growth and financial development across a sample of 12 Asian countries. Our analysis reveals a compelling positive association between financial development and national income, underscoring the pivotal role of finance in driving economic expansion within the region. To capture the multifaceted dimensions of financial development, we consider various proxies including liquidity, quasi-liquidity, and domestic credit to the private sector. Among these, liquidity emerges as the most robust proxy, exhibiting a statistically significant and positive impact on national income. This underscores the importance of ensuring adequate levels of liquidity within the financial system to support overall economic growth. However, our findings also underscore the nuanced nature of the finance-growth relationship, highlighting the influence of additional factors such as institutional quality, regulatory oversight, and broader structural characteristics of the economy. These factors play a critical role in shaping the effectiveness of financial development initiatives and must be carefully considered in the formulation of policy interventions aimed at fostering sustainable economic growth. By providing insights into the complex interplay between financial development and economic performance, our study contributes to a deeper understanding of the dynamics driving growth within the Asian context. Ultimately, our findings can inform policymakers and stakeholders as they seek to design strategies that promote inclusive and resilient economic development across the region.

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