ISSN: 2565-4942 eISSN: 2738-9693

Original Research Article

Impact of Financial Deepening on Economic Growth in Nepal

Yadav Mani Upadhyaya[1], Khom Raj Kharel[2], Omkar Poudel[3], Pradeep Acharya[4]

[1] Assistant Professor of Economics, Tribhuvan University, Saraswati Multiple Campus, Kathmandu, Nepal.
[2] Associate Professor of Economics, Tribhuvan University, Saraswati Multiple Campus, Kathmandu, Nepal.
[3] Assistant Professor of Economics, Birendra Multiple Campus, Tribhuvan University, Kathmandu, Nepal.
[4] Account Specialist at NOWCFO, MBA, Tribhuvan University, Kathmandu, Nepal.

Article History

Received on - June 03, 2024
Revised on - August 13, 2024
Accepted on - October 03, 2024

Keywords:

Broad money (M2), economic growth, financial deepening, granger causality test, private sector credit (PSC), real gross domestic product (RGDP), vector autoregressive (VAR) model

Online Access

DOI: https://doi.org/10.58665/njiss.59

Correspondence

Omkar Poudel,
Assistant Professor of Economics, Birendra Multiple Campus, Tribhuvan University, Kathmandu, Nepal.
Email:omkar60475@gmail.com

How to Cite APA Style

Upadhyaya, Y. M., Kharel, K. R., Poudel, O., & Acharya, P. (2024). Impact of financial deepening on economic growth in Nepal. *Nepalese Journal of Insurance and Social Security*, 7(1),32-43. https://doi.org/10.58665/njiss.59

Abstract

Purpose: The objective of this study is to investigate the relationship between financial deepening and economic growth in Nepal.

Design/methodology/approach: The long-term and short-term dynamics among the variables are assessed using econometric techniques. Granger causality tests are applied to determine the direction of causality between private sector credit and economic growth.

Findings: The findings reveal a significant long-term equilibrium relationship among the variables. Both broad money and private sector credit have a positive impact on economic growth in Nepal. The Granger causality tests show bidirectional causality between private sector credit and real gross domestic product.

Conclusions: The results highlight that both broad money and private sector credit contribute significantly to economic expansion.

Implications: The robustness of the model, confirmed through diagnostic tests, underscores the critical role of financial sector policies in sustaining Nepal's economic growth.

JEL Code: O16, O43, E44, F43, O53

Introduction

Financial deepening, which refers to the increased provision of financial services with a wider choice of instruments, is often seen as a critical factor in fostering economic growth. The underlying premise is that a more developed financial system can efficiently allocate resources, facilitate investment, and stimulate economic activities. While extensive research has been conducted globally on the relationship between financial deepening and economic growth, these studies predominantly focus on developed economies or large emerging markets, often neglecting smaller, developing countries with unique financial and economic landscapes.

Nepal, with its distinct financial structure, regulatory environment, and economic challenges, presents a case that has not been thoroughly explored in existing literature. The country's financial system is characterized by a mix of formal and informal institutions, with significant regional disparities and sector-specific dynamics that may influence the effectiveness of financial deepening in driving economic growth. Despite the importance of understanding these factors, there is a noticeable gap in empirical research specifically targeting the Nepali context.

Recently, there has been a lot of focus on the link between financial deepening indices and economic development in emerging nations. The economic circumstances that boost the competitiveness of the financial market, which in turn boost the economy's non-financial sectors, are known as financial deepening indicators (Kharel et al., 2024). Financial deepening facilitates the management and diversification of risk, encourages information sharing, mobilizes savings, increases the effectiveness of resource allocation, and supports real sector growth; a robust financial system is a key driver of economic growth (Levine, 1997).

Most people agree that a more advanced financial system is less fragile because it is more stable. This is based on the notion that deep, liquid financial systems with a broad range of instruments tend to absorb more shocks than shallow ones (Sahay et al., 2015). Increased financial service availability to all societal strata through a broader range of services is referred to as financial dependence. In general, it suggests more liquidity. This is predicated on the idea that an economy has more financial depth and prospects for ongoing development and expansion the more liquid money is available to the economy (Alrabadi & Kharabsheh, 2016). One of the main goals of financial sector reforms embraced by developing nations is often financial deepening (Odhiambo, 2005).

Financial institutions must be able to support financial intermediation, develop new financial services, and offer them to consumers at reasonable prices to support the expansion of commercial firms. This is known as financial deepening. Nzotta and Okereke (2009) define financial deepening as an economy's financial institutions' ability to effectively allocate funds toward investment objectives. The financial deepening, which actively solicits savings and idle capital and disburses it to governments, businesses, individuals, and entrepreneurs for investment projects and other purposes with an eye toward returns, is the cornerstone of economic development (Torruam et al., 2013).

Nzotta (2004) asserts that the financial system uses a variety of institutional frameworks to act as a catalyst for economic advancement. The system actively searches for and draws in savings and idle money, which it then distributes to individuals, companies, entrepreneurs, and the government for projects including investments and other uses with an eye toward profits. The financial system is essential for mobilizing and allocating funds for beneficial purposes. It also provides the framework for regulating the system's liquidity. Additionally, it helps to increase portfolio diversification, lessen the risks that companies and enterprises experience during their productive processes, and shield the economy from the ups and downs of global economic fluctuations (Nzotta & Okereke, 2009).

In a study on the causal relationship between financial deepening indicators and economic growth in Nigeria, titled "Evidence from Bootstrap Rolling Wider Approach," Aye (2013) suggested that financial deepening possesses predictive power and that there is a causal relationship between M2, GDP, and RGDPPC. However, this relationship is episodic, asymmetric, and time-varying. Similarly, Safdar's (2014) study, found that financial deepening, foreign direct investment (FDI), inflation, and economic growth are cointegrated, indicating a long-term relationship among these variables. The GDP and FDI error correction model illustrates the long-term adjustment impact, while the VECM findings show the short-term link between the variables. The Granger causality test reveals a unidirectional link between these variables.

Timsina (2014) conducts a supply-side analysis of the effects of commercial bank loans to the private sector on economic growth in Nepal. When time-series data from 1975 to 2013 were subjected to the Johansen co-integration technique and the Error Correction Model, the empirical findings showed that bank loans to the private sector had a long-term beneficial impact on Nepal's economic growth. Nonetheless, there is a short-term feedback loop between loan expansion in the private sector and economic development. To be more precise, over time, a one percentage point increase in real private sector lending results in a 0.40 percentage point increase in real GDP domestic output. The results indicate that policymakers have to concentrate on implementing enduring approaches to foster economic expansion, such as the establishment of a contemporary banking industry, effective financial markets, and facilities to augment private sector credit all of which are important for maintaining steady, long-term growth.

Khatri Chettri (2022) examines the relationship between Nepal's financial depth and both short- and long-term economic growth. It also considers how the method of measuring depth affects the outcome. The Nepal Rastra Bank's data from 1980 to 2019 is utilized. The data demonstrates a link between economic expansion and financial depth. Notably, the largest engine of development is credit given to the private sector. This shows that the economy can benefit from a more complex financial structure. For long-term prosperity, Nepal's policy should prioritize lending at reasonable rates to worthy initiatives.

This study seeks to fill gap by investigating the relationship between financial deepening and economic growth in Nepal, considering the country's unique financial ecosystem. By doing so, it aims to provide more nuanced insights into how financial deepening can be harnessed to support sustainable economic development in Nepal, offering valuable implications for policymakers and stakeholders.

Literature Review

Theoretical Review

Kargbo and Adamu (2009) examined Sierra Leone and found that financial development is a major driver of economic expansion, particularly through investment, which fits within the supply-leading framework. Their study, like others, reinforces the notion that financial deepening can serve as a catalyst for economic growth, especially in developing economies.

Shifting focus to a different region, the study carried out by Marashdeh and Al-Malkawi (2014) used the autoregressive distributed lag approach to co-integration to analyze time series data ranging from 1970 to 2010. The financial depth of the financial intermediaries' sector (measured as M2/GDP) was represented by the monetization ratio. The results showed that financial deepening (measured by M2/GDP) and economic growth (measured by GDP per capita growth) had a long-term, statistically significant, and positive relationship. But there was no evidence for a short-term dynamic bidirectional relationship between the variables (Rabinovich & Reddy, 2024). In summary, the results confirmed the supply-leading hypothesis, which states that financial depth promotes Saudi Arabia's economic growth.

Turning to the relationship between financial deepening and economic inequality, Kotarski (2015) demonstrated that growing income inequality and the GDP/GDP ratios of domestic bank credit and monetary aggregate M2/GDP in the Chinese economy are significantly correlated. This is related to the link that exists between economic inequality and financial deepening.

For the theoretical foundations, Olawumi et al. (2017) found that financial deepening significantly improved the profitability of commercial banks in Nigeria. This aligns with the supply-leading hypothesis, as the expansion of financial services could facilitate more efficient capital allocation, thus boosting bank profitability and economic growth.

De Vita and Luo (2021) further contributed to this discussion by showing that in 33 different nations between 1996 and 2015, family debt (across the financial, nonfinancial, and household sectors of financialization) influenced income inequality. If the economy is oversaturated, financial deepening could start inflationary processes. A jump in inflation can result from an increase in the money supply, even if higher monetization is often associated with the financial system's positive effects on economic development.

Empirical Review

Expanding on the global perspective, Kargbo and Adamu (2009) examined the link between financial development and economic growth in Sierra Leone from 1970 to 2008. They employed the principal components approach to create a Financial Sector Development Index (FSDI) that reflects sectoral progress. Utilizing the autoregressive distributed lag (ARDL) method, the study identified a distinct co-integrating relationship among real GDP, financial development, investment, and the real deposit rate. The findings indicate that financial development has a positive and statistically significant impact on economic growth and serves as a key driver of economic expansion through investment.

Nzotta and Okereke (2009) also examined Nigeria's financial depth and economic growth between 1986 and 2007. Secondary data collected over a 22-year period was used in the study. Nigeria's financial deepening index has always remained poor, according to the study's result.

In a similar vein, Samuel and Emeka (2009) investigated Nigeria's economic progress and financial deepening from 1986 to 2007 using data from the CBN Statistical Bulletin 2008. Their question was whether economic development requires a large level of financial depth. Using two-stage least squares and trend analysis, they found that Nigeria's financial deepening index was low. The causal relationship between financial depth and economic progress was not demonstrated, nor did the study's coverage span the years 2008–2014.

In the same context, Chukwuka (2012) examined the relationship between Nigeria's economic progress and financial deepening between 1986 and 2010 using a Vector Auto Regressive model. The study concludes that financial deepening affects economic growth more permanently than it does temporarily. The research also found a positive and substantial relationship between GDP and the money supply, deposit money bank assets, and private sector lending. It recommended that monetary authorities continue to alter policies to bolster the burgeoning confidence in the financial sector.

Continuing with the focus on Nigeria, Onwumere et al. (2012) investigated the impact of financial deepening on economic development in Nigeria from 1992 to 2008 using annual time series data from the CBN Statistical Bulletin. In lieu of financial depth and GDP growth rate for economic growth, market capitalization, market liquidity, broad money velocity, variety of money stocks, and economic volatility are substituted (Golka, 2024). Using the Ordinary Least Squares Multiple Liner Regression method, data analysis was completed. They found that whereas broad money velocity and market liquidity supported economic growth in Nigeria over the research period (1992–2008), market capitalization, money stock variety, and economic volatility did not.

In a broader perspective, Marashdeh and Al-Malkawi (2014) applied the autoregressive distributed lag approach to analyze the relationship between financial depth and economic growth in Saudi Arabia. Their findings confirmed the supply-leading hypothesis, showing that financial deepening positively impacts economic growth in the long term.

Adding another layer of analysis, Alenoghena (2014) examined the effects of the capital market and financial depth on Nigeria's economic development between 1981 and 2012. Using the Augmented Dickey Fuller (ADF) test and error-correcting mechanism model, the study found that Stock Market Capitalization (MCAP), Narrow Money Diversification (NMD), and Interest Rate (INT) significantly enhanced economic growth (Bernards, 2024). Other liquidity measures, such as Financial Development (FID) and Monetization Ratio (MTR), were not significant even with large coefficients. The study recommended expanding financial services to underserved areas, boosting loans to productive companies, and improving liquidity in the financial market.

Similarly exploring the connection between financial deepening and broader economic indicators, Vipin et al. (2015) used monthly time series data to investigate the causal association between economic progress and financial depth in the case of India between 1991 and 2013. As data analytic methods, they have examined the long-term equilibrium relationship between the target variables using the Granger Error Correction Model (ECM) approach and the Auto regressive Distributed Lag (ARDL) Bound testing strategy. According to the findings, there is a long-term equilibrium relationship between financial depth and economic growth. Their results are fascinating, but they cannot be extended to or extrapolated to other countries since Nigeria is a unique nation on a separate continent.

However, the relationship between financial deepening and economic growth is not always straightforward. For example, Kotarski (2015) and De Vita and Luo (2021) highlighted the complexities of this relationship in the context of income inequality and inflation. These studies suggest that while financial deepening can foster economic growth, it can also exacerbate income inequality and lead to inflation if not managed properly—challenges that must be addressed in applying the supply-leading hypothesis.

Vipin et al. (2015) further substantiated this hypothesis in the context of India, where a long-term equilibrium relationship between financial depth and economic growth was observed. This relationship, explored through advanced econometric models like ECM and ARDL, underscores the role of financial deepening as a driver of sustained economic development, a key tenet of the supply-leading hypothesis.

Similarly, Alrabadi and Kharabsheh (2016) examined the dynamic relationship between Jordan's financial deepening and economic progress between 1992 and 2014. Granger causality, Johansen-Juselius integration tests, and vector auto regressive regressions were employed to achieve the study's objectives. Financial deepening did not have a statistically significant short-term influence on economic growth, according to quarterly figures. However, a statistically significant long-term equilibrium relationship between the two variables was found by the cointegration tests, regardless of the proxy used for financial depth (Sawyer, 2018). Moreover, the Granger causality test showed that financial depth and economic development have a two-way causal relationship when the latter is measured by the amount of credit given to the private sector. But when financial deepening was measured using the money supply (M2) and deposit volume as stand-ins, a one-way causal relationship between financial deepening and economic development was found.

Similarly, Alrabadi and Kharabsheh (2016), through their study on Jordan, found a long-term equilibrium relationship between financial deepening and economic growth, with the Granger causality test indicating a two-way relationship when financial depth was measured by credit to the private sector. This suggests that not only does financial deepening drive economic growth, but economic growth also contributes to further financial deepening—a concept related to the feedback mechanism in the supply-leading hypothesis.

Building on the idea that financial deepening can influence various aspects of economic systems, Wairagu (2016) studied how financial deepening impacts entrepreneurship in Kenya. The indicators of financial deepening were lending to small and medium-sized enterprises (SMEs), cheap borrowing costs, a saving culture, and financial industry regulation.

Building on this, Wairagu (2016) examined the impact of financial deepening on entrepreneurship in Kenya, demonstrating how increased lending to SMEs and better financial regulations can stimulate economic activity—again supporting the supply-leading theory.

Olawumi et al. (2017) examined, using secondary data, how financial deepening affected the profitability of several commercial banks in Nigeria. The findings demonstrated a substantial correlation and statistical significance for each component of the financial deepening indicators. This provides empirical evidence in favor of the assertion that financial deepening increased the selected Nigerian commercial banks' profitability. According to the study's findings, a subset of commercial banks' performance was highly and considerably impacted by each financial deepening component.

Shvets (2021) highlights economies that are vulnerable to rapid monetary expansion, which is detrimental to attaining a short-term, expeditious equilibrium between production and the money supply's real value in the context of inflexible pricing. As per the author's assertion, the vigorous monetary expansion that facilitates the economic recovery stems from the strong money market of the national currency circulation.

Similarly, Alexiou et al. (2022) show that loan rates, financial savings ratio, checks/GDP ratio, and deposit money banks/GDP ratio were the four explanatory variables that showed a strong correlation with financial deepening. Additionally, the study discovered that all nine explanatory factors were beneficial and statistically associated with financial depth. According to the study's findings, the financial industry has not been able to sustain high levels of economic monetization and effective financial intermediation, especially when it comes to loan distribution.

Data from primary and secondary sources were used in this inquiry, which took the form of a descriptive survey (Manogna & Kulkarni, 2024). To get primary data, a questionnaire was employed, while expressive documentary analysis was utilized to gather secondary data. Subsequently, the results of the investigation were tallied, emphasizing bar graphs and the internet (Bezemer & Samarina, 2016). A noteworthy study's findings demonstrated that, between 2006 and 2016, the growth rate of loans obtained by SMEs and business owners improved at the same pace.

A potential research gap in investigating the relationship between financial deepening and economic growth in Nepal lies in the limited empirical studies that focus specifically on the unique financial and economic context of Nepal. While there is extensive global literature on the relationship between financial deepening and economic growth, much of it is centered on developed economies or larger emerging markets, which may not account for Nepal's distinctive financial structure, regulatory environment, and economic challenges. Additionally, previous studies may have overlooked the role of informal financial systems, regional disparities, and sector-specific impacts within Nepal's economy. Addressing these gaps could provide more nuanced insights into how financial deepening can effectively drive sustainable economic growth in the country.

Methods

This study adopted a quantitative method, employing both descriptive and analytical methods. Measurements were taken for various variables, and the impact of independent variables on the dependent variable was quantified using secondary data. The collected data was analyzed with the EViews statistical package, version 10, to interpret the results.

Model Specification

In this study, the dependent variable is the Real Gross Domestic Product (RGDP) measured in millions of rupees. The independent variables include Private Sector Credit (PSC) and Broad Money (M2), both also measured in millions of rupees. The functional relationship between these variables can be expressed as RGDP = f (PSC + M2). To establish a linear relationship among the variables, we take the logarithm of both sides of the equation, resulting in the form ln (RGDP) = ln (f (PSC, M2)). This logarithmic transformation allows us to compute the elasticities of RGDP with respect to the explanatory variables, providing a clearer understanding of how changes in private sector credit and broad money impact economic growth.

where, LNRGDP= Natural Logarithms of Real Gross Domestic Product (Rs. in million), LNPSC = Natural Logarithms of Private sector credit (Rs. in million), LNM_2 = Natural Logarithms of Broad Money (Rs. in million), e_t= error term, β_i= constant coefficient

Table 1: Variables, Abbreviations, and Units Used in Research

Variable names	Symbols	Units
Real Gross Domestic Product	RGDP	Rs, in million
Private sector credit	PSC	Rs, in million
Broad Money	M_2	Rs, in million

Note. Nepal Rastra Bank, QEB2023

Econometric Method

In order to examine the correlation between financial deepening indicators (loan to the private sector and money supply) and GDP growth in Nepal, a Vector Autoregressive (VAR) modeling technique was utilized in this study. The data used in the research were taken from the 1975–2022 Nepal Rastra Bank (NRB) statistical bulletin.

Stationarity Test: To determine if the variables were stationarity, the study first performed unit root tests, including the augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. Ensuring the stationarity of variables is essential for successful modeling, as non-stationarity might result in false regression findings (Poudel et al., 2024).

Johansen Co-integration test: The Johansen co-integration approach was then used in the study to ascertain if co-integrating equations existed among the variables and in what order. By revealing long-term links between non-stationary time series variables, co-integration analysis sheds light on equilibrium relationships.

Granger Causality Test: Next, Granger causality tests were performed to investigate which way the variables' causal linkages were oriented. Granger causality research indicates possible causal relationships by assisting in determining if historical values of one variable offer valuable information for forecasting another variable.

Vector Error Correction Model (VECM): Then, the long-run equilibrium relationships between the variables as well as the short-run dynamics were investigated using the Vector Error Correction Model (VECM). VECM captures both short-term dynamics and long-term equilibrium behavior, allowing for the calculation of the rate of adjustment towards equilibrium after departures from long-run connections. The tests for residual homoskedasticity, serial

correlation, and normality were used to evaluate the suitability of the VECM. The validity of the model's output and its dependability are guaranteed by these diagnostic tests. The study attempts to offer solid insights into the dynamics of financial sector development and its influence on economic growth in the context of Nepal by utilizing rigorous econometric approaches.

Result and Analysis

The increase in PSC and M2 may contribute to higher RGDP, reflecting greater financial deepening and associated economic activities. Table 2 provides a detailed summary of the descriptive statistics for three key economic indicators.

Table 2: Descriptive Statistics

	LNM_2	LNPSC	LNRGDP
Mean	11.78066	11.13486	13.68448
Median	11.93689	11.41642	13.72343
Maximum	15.63436	15.40543	14.65380
Minimum	7.63206	6.57396	12.74152
Std. Dev.	2.37042	2.72894	0.60062
Skewness	-0.05162	-0.08812	-0.05850
Kurtosis	1.85143	1.76871	1.76892
Jarque-Bera	2.71514	3.15875	3.12223
Probability	0.25729	0.20610	0.20990
Sum	577.25220	545.60820	670.53970
Sum Sq. Dev.	269.70670	357.46140	17.31568
Observations	49	49	49

Note. Econometrics Calculation from E-views-10

Table 2 presents descriptive statistics for three key economic indicators: M_2, LNPSC and RGDP. The data shows a relatively symmetric distribution, with LNPSC showing the highest variability. Skewness values and kurtosis values indicate near-symmetric, platykurtic distributions. The Jarque-Bera test results suggest normality, implying data distributions approximate normality. The sum of all observations and sum of squared deviations provide further insights.

Graphical Analysis of RGDP, PSC and M_2: A graphical analysis of RGDP, PSC, and M_2 can reveal trends, patterns, and relationships among these economic indicators over time. By plotting these variables on a time series graph, we can visually assess their growth trajectories, volatility, and potential correlations, providing a deeper understanding of their dynamic interactions within the economy.

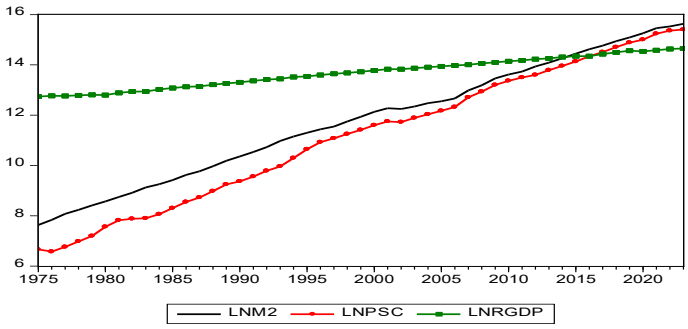

Figure 1: RGDP, PSC and M2 of Nepal from 1975 to 2023

The graph shows the time series trends of three key economic indicators LNM_2, LNPSC and LNRGDP from 1975 to 2023. Over this period, LNM_2 (black line) and LNPSC (red line) exhibit a steady and significant upward trend, indicating substantial growth in the money supply and private sector credit. Meanwhile, LNRGDP (green dotted line) also shows an upward trajectory, albeit at a more gradual and consistent pace compared to LNM_2 and LNPSC. The parallel growth of these indicators suggests a correlation where increases in money supply and private sector credit are associated with economic growth, as reflected in the rise of real GDP.

Unit Root Test Results: Table 3 presents the results of the unit root tests conducted using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) methods. These tests are essential for determining the stationarity of time series data, which is a prerequisite for many econometric analyses.

Table 3: Unit Root Test Results ADF and PP

Null Hypothesis: the variable has a unit root

At Level		ADF			PP		
		LNRGDP	LNM_2	LNPSC	LNRGDP	LNM_2	LNPSC
With Constant	t-Statistic	0.1185	-1.4572	-0.6493	0.1508	-1.3433	-0.6017
	Prob.	0.9640	0.5464	0.8494	0.9664	0.6019	0.8605
With Constant & Trend	t-Statistic	-2.9860	-2.3869	-2.2249	-3.1063	-2.2300	-1.9276
	Prob.	0.1467	0.3813	0.4652	0.1165	0.4627	0.6247
At First Difference							
		d(LNRGDP)	$d(LNM_2)$	d(LNPSC)	d(LNRGDP)	$d(LNM_2)$	d(LNPSC)
With Constant	t-Statistic	-7.7542	-5.2545	-5.5605	-7.7849	-5.2452	-5.5850
	Prob.	0.0000*	0.0001*	0.0000*	0.0000*	0.0001*	0.0000*
With Constant & Trend	t-Statistic	-6.4932	-5.3486	-5.6816	-7.6931	-5.3474	-5.6785
	Prob.	0.0000*	0.0003*	0.0001*	0.0000*	0.0003*	0.0001*

Note. Econometrics Calculation from E-views-10

Table 3 presents the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests for LNRGDP, LNM_2, and LNPSC at their levels and first differences. At their levels, all variables show non-significant test statistics with high p-values, indicating non-stationarity (i.e., we fail to reject the null hypothesis of a unit root). However, when considering the first differences of these variables, the test statistics become highly significant with p-values close to zero, indicating stationarity (i.e., we reject the null hypothesis of a unit root). This suggests that LNRGDP, LNM_2, and LNPSC are integrated of order one (I (1)), meaning they become stationary after first differencing.

VAR Lag Order Selection: For co-integration test, it is required to determine the proper lag length. The table below shows that most of the criteria indorse choosing 2 lags. Therefore, we continue with further tests using lag (2).

Table 4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	35.19111	NA	4.80e-05	-1.430716	-1.310272	-1.385815
1	238.4890	370.4540	8.54e-09	-10.06618	-9.584402*	-9.886577*
2	248.7049	17.25345*	8.14e-09*	-10.12022*	-9.277108	-9.805914
3	253.7003	7.770596	9.88e-09	-9.942234	-8.737792	-9.493230
4	257.1905	4.963836	1.30e-08	-9.697354	-8.131580	-9.113649

Note. Econometrics Calculation from E-views-10

Co-Integration Analysis: Co-integration arises when several time series variables, possessing the same order of integration, exhibit a long-term relationship. The co-integration among LNRGDP, LNPSC, and LNM_2 implies a robust and enduring connection between them. It is plausible for these variables to exhibit multiple co-integrating relationships. The Johansen test, as proposed by Mackinnon (2010), furnishes test statistics and estimations crucial for determining the number of co-integrating equations. The results of the Johansen co-integration test are presented in Table 5.

Table 5: *Results of Johansen Co-Integration test*

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.394243	30.33432	29.79707	0.0433
At most 1	0.131869	7.275608	15.49471	0.5458
At most 2	0.016613	0.770614	3.841466	0.3800
Trace test Indicates 1 Co-integrating eqn (s) at the 0.05 level				
Unrestricted Co-Integration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.394243	23.05871	21.13162	0.0265
At most 1	0.131869	6.504994	14.26460	0.5493
At most 2	0.016613	0.770614	3.841466	0.3800

Note. Max-eigenvalue test Indicates 1 Co-integrating eqn(s) at the 0.05 level

Based on these test results, it seems there is at least one co-integrating relationship among the variables, and there might be more than one. Normalized Co-integrating Equation = LNRGDP-0.071614LNM_2-0.160445LNPSC

Coefficients signs should be reversed in the normalized cointegrating equation of Johansen model which represents the long run.

Table 6: Results of Normalized Co-integrating Equation

1 Co-integrating Equation(s):	Log likelihood	255.7230
Normalized co-integrating coefficients (standard error in parentheses)		
LNRGDP	LNM_2	LNPSC
1.000000	-0.071614	-0.160445
	(0.04727)	(0.04082)

Note. Econometrics Calculation from E-views-10

LNRGDP is the target variable. LNM_2 has a positive and significant impact on LNRGDP in the long run. An increase in LNM_2 will lead to an increase in LNRGDP. In the case of LNPSC it is also positive and significant. An increase in LNPSC will lead to an increase in LNRGDP.

Granger Causality Test: The Granger Causality Test is often applied to assess the direction of causality between the variables included in the model (Poudel et al., 2023).

Table 7: Pairwise Granger Causality Tests Results

Null Hypothesis:	Obs	F-Statistic	Prob.
LNM_2 does not Granger Cause LNRGDP	47	8.54696	0.0008
LNRGDP does not Granger Cause LNM_2		0.85639	0.4320
LNPSC does not Granger Cause LNRGDP	47	6.53751	0.0034
LNRGDP does not Granger Cause LNPSC		4.64192	0.0151
LNPSC does not Granger Cause LNM_2	47	0.48663	0.6181
LNM_2 does not Granger Cause LNPSC		1.19211	0.3136

Note. Econometrics Calculation from E-views-10

LNM_2 can predict LNRGDP, but LNRGDP cannot predict LNM_2. There is a bidirectional relationship between LNPSC and LNRGDP, as each can predict the other. No Granger causality is found between LNPSC and LNM_2 in either direction. This indicates that past values of LNPSC can predict LNRGDP, and past values of LNRGDP can predict LNPSC.

Vector Error Correction Model: Now that the long-term link between the variables has been established, we may proceed with evaluating and estimating the VECM. The variables in the model are automatically translated into their initial differences, and the computations are done with level data. The VECM equation for the dependent variable LNRGDP is as follows:

D(LNRGDP) = C (1) *(LNRGDP (-1) - 0.0716*LNM_2(-1) - 0.1604*LNPSC (-1) - 4.14268) + C (2) *D (LNRGDP (-1)) + C (3) *D (LNRGDP (-2)) + C (4) *D(LNM_2(-1)) + C (5) *D(LNM_2(-2)) + C (6) *D (LNPSC (-1)) + C (7) *D (LNPSC (-2)) + C (8)

Where, C (1) = Coefficient of co-integrating equation (long-term causality), C (2), C (3), C (4), C (5), C (6), and C (7) = Coefficient of co-integrating equation (short-term causality) and C (8) = Constant / intercept.

Table 8: Results of Vector Error Correction Model

	Coefficient	Std. Error	t-Statistic	Prob.
C (1)	-0.519149	0.153448	-3.383229	0.0017
C (2)	-0.002323	0.151310	-0.015355	0.9878
C (3)	-0.071941	0.147018	-0.489336	0.6274
C (4)	-0.009058	0.072652	-0.124677	0.9014
C (5)	0.000372	0.066875	0.005569	0.9956
C (6)	0.019985	0.051186	0.390452	0.6984
C (7)	-0.073738	0.051106	-1.442835	0.1573
C (8)	0.055427	0.015587	3.555961	0.0010
R-squared	0.318156	Mean dependent var		0.041080
Adjusted R-squared	0.192553	S.D. dependent var		0.023914
S.E. of regression	0.021489	Akaike info criterion		-4.685824
Sum squared resid	0.017547	Schwarz criterion		-4.367799
Log likelihood	115.7739	Hannan-Quinn criter.		-4.566690
F-statistic	2.533030	Durbin-Watson stat		1.970433
Prob(F-statistic)	0.030519			

Note. Econometrics Calculation from E-views-10

The significant error correction term (C (1)) indicates that the model effectively corrects deviations from long-term equilibrium. Most short-term dynamics coefficients are not significant, suggesting limited short-term interactions among the variables. The constant term (C (8)) is significant, indicating a consistent positive trend over time. The model explains a modest portion of the variance (R-squared = 32%) and is overall statistically significant (Prob(F-statistic) = 0.030519).

Long Run Causality

From the VECM equation, the C (1) is the coefficient of co-integrating equation (LNRGDP (-1) - 0.0716*LNM_2(-1) - 0.1604*LNPSC (-1) - 4.14268) from which the residual is taken for developing the error correction (EC) term and from the EC term the long-run causality is developed. The coefficient of ECM is statistically significant at the 5% significance level, shows the predicted negative sign, and lies between zero and one. This emphasizes the importance of the error correction process, which maintains co-integration and shows that the level of RGDP and the explanatory variables are in a stable, long-term equilibrium(Gujarati, 2004).

The long-term elasticity is reflected by the ECM, which suggests a feedback mechanism of about 51.91% from the disequilibrium created by the explanatory components in the prior year. In essence, the error correction term's coefficient measures how quickly the RGDP responds to changes in the explanatory variables in order to achieve long-term static equilibrium. As a result, the rate of adjustment can be described as rapid.

Short Run Causality

Table 9: Wald Test Results for Short Run Causality from M2

Test Statistic	Value	df	Probability
F-statistic	0.008130	(2, 38)	0.9919
Chi-square	0.016261	2	0.9919
Null Hypothesis: C (4) = C (5) = 0; Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C (4)		-0.009058	0.072652
C (5)		0.000372	0.066875

Note. Econometrics Calculation from E-views-10

The results imply that both C (4) and C (5) i.e. LNM_2 are not statistically significant and do not contribute meaningfully to the model. Thus, the restrictions that C (4) = 0 and C (5) = 0 are valid. The Wald Test results suggest that the coefficients C (4) and C (5) are not significantly different from zero, indicating their lack of importance in the model's short-term dynamics.

Table 10: Wald Test Results for Short Run Causality from PSC

Test Statistic	Value	df	Probability
F-statistic	1.043870	(2, 38)	0.3620
Chi-square	2.087740	2	0.3521
Null Hypothesis: C (6) =C(7)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C (6)		0.019985	0.051186
C (7)		-0.073738	0.051106

Note. Econometrics Calculation from E-views-10

The results imply that both C (6) and C (7) i.e. LNPSC are not statistically significant and do not contribute meaningfully to the model. Thus, the restrictions that C (6) = 0 and C(7) = 0 are valid. The Wald Test results suggest that the coefficients LNPSC are not significantly different from zero, indicating their lack of importance in the model's short-term dynamics.

Model Diagnosis: Model analysis is an ongoing process, requiring researchers to revisit and refine their models in response to analytic findings. Ensuring that the chosen model accurately represents the underlying economic relationships in the data is crucial. This requires conducting various diagnostic tests, such as examining residual heteroscedasticity, checking for serial correlation, ensuring model stability, and assessing the normality of the model.

F-Test: Our model is deemed well-fitted, with an R-squared value of 31.81 percent and an F-statistic p-value below 5 percent. The F-statistic p-value falls within the 5 percent, confirming its statistical significance in evaluating the overall fit of the model.

Normality Test: The Jarque-Bera test is employed to assess whether the distribution of the model's variables conforms to the normality assumption. This test is crucial as it indicates whether the variables follow a normal distribution. The test results are as follows:

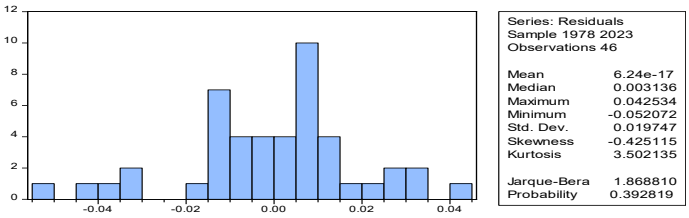

Figure 2: Jarque-Bera Normality Test

The Jarque-Bera test results indicate that the null hypothesis is accepted, as the test's probability surpasses the 5% significance level. With a Jarque-Bera probability of 0.392819, which is greater than 5 percent, it suggests that the model's residuals follow a normal distribution.

Heteroskedasticity Test: The Breusch-Pagan-Godfrey test is designed to identify heteroskedasticity, a challenge in econometric regression study. The results of this test are detailed in the table below.

Table 11: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.560373	Prob. F(9,36)	0.1648
Obs*R-squared	12.90869	Prob. Chi-Square(9)	0.1668
Scaled explained SS	11.02084	Prob. Chi-Square(9)	0.2743

Note. Econometrics calculation from E-views-10

The heteroskedasticity test results are shown in Table 11. These results indicate that the model does not suffer from heteroskedasticity, as the null hypothesis of homoscedasticity was not rejected at the 5% significance level. In other words, the p-value of the observed R-squared exceeds 5 percent, confirming that the data demonstrates homoscedasticity.

Breusch-Godfrey Serial Correlation LM Test: To assess serial correlation within the model, the Breusch-Godfrey LM test is conducted, and the results are presented as follows:

Table 12: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.220247	Prob. F (2,36)	0.3071
Obs*R-squared	2.920428	Prob. Chi-Square (2)	0.2322

Note. Econometrics Calculation from E-views-10

The results in Table 12 reveal the presence of autocorrelation within the model, as indicated by the outcome of the Breusch-Godfrey Serial Correlation LM Test. Therefore, we conclude that the null hypothesis of no serial correlation is accepted, as both the F-statistic and the probability associated with Obs R-squared are above the 5% significance level.

Stability Test in VECM: Conducting a stability test is essential to ensure that the assessed relationships hold consistently over time. It allows researchers and analysts to evaluate the reliability of the model's estimates and detect any potential issues with parameter stability. The CUSUM test, in particular, examines the increasing sum of the deviations between the estimated coefficients and a reference value.

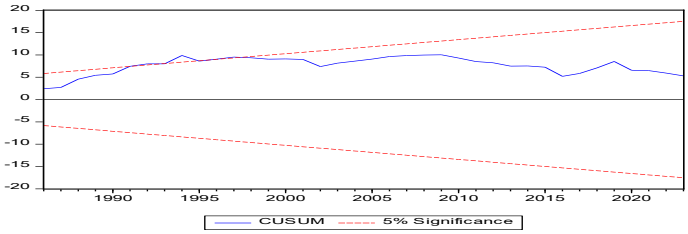

Figure 3: Results of CUSUM Test

The two red lines indicate the upper and lower limits of the 5% confidence interval for the CUSUM statistic, while the blue line represents the actual CUSUM statistic. Since the blue line stays within the red bounds through the time series, it advises that the model's parameters are stable.

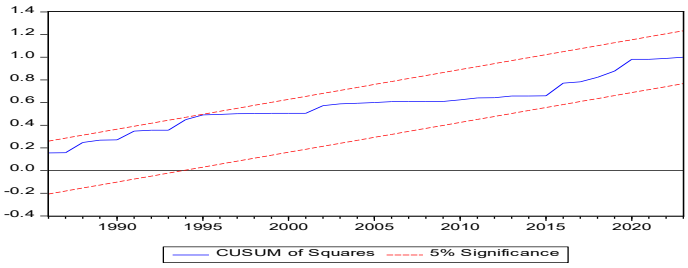

Figure 4: Results of CUSUM Square Test

The two red lines indicate the upper and lower bounds of the 5% confidence interval for the CUSUM of squares statistic, while the blue line represents the actual CUSUM of squares statistic. Since the blue line remains within the red bounds through the time series, this suggests that the model's parameters are stable.

Discussions

The study's findings highlight the critical role of financial deepening in driving economic growth in Nepal, consistent with existing literature. The positive association between real GDP (RGDP), private sector credit (PSC), and broad money (M2) is supported by unit root tests and Johansen co-integration tests, indicating that these variables are co-integrated and exhibit a long-term equilibrium relationship. This finding aligns with Timsina (2014), who identified a long-term positive impact of commercial bank loans on economic growth in Nepal, although the short-term effects were less pronounced. Similarly, Khatri Chettri (2022) found a significant relationship between financial depth and economic growth, particularly highlighting the importance of private sector credit.

The Granger causality tests conducted in this study revealed a bi-directional causality between PSC and RGDP, suggesting that not only does improved access to private sector credit stimulate economic growth, but economic growth also facilitates increased credit availability. This bi-directional relationship is consistent with the findings of Olawumi et al. (2017), who demonstrated that financial deepening significantly influences the profitability of commercial banks in Nigeria, thereby promoting broader economic growth.

Moreover, the stability tests, including the CUSUM and CUSUM square tests, confirm the robustness of the model used in this study, indicating that the parameters remain stable over time. This stability is crucial for policymakers, as it reinforces the reliability of the conclusions drawn from the model.

Comparing these findings with the broader literature, the study by Wairagu (2016) on financial deepening and entrepreneurship in Kenya also supports the notion that countries benefit from increased lending to SMEs and improved financial market conditions. However, studies such as those by Vipin et al. (2015) and Onwumere et al. (2012) underscore the importance of considering country-specific contexts when evaluating the impact of financial deepening. While the positive relationship between financial deepening and economic growth is evident across different countries, the mechanisms and magnitude of this impact can vary significantly.

The results of this study corroborate the existing body of literature, affirming that financial deepening, particularly through expanded private sector credit and broad money supply, is a significant driver of economic growth in Nepal. This underscores the importance of developing robust financial sector policies aimed at enhancing credit access and expanding monetary aggregates to sustain long-term economic growth. Such policies are essential for fostering a conducive environment for investment and consumption, thereby promoting steady economic expansion.

Conclusion and Implications

This study explored the relationship between financial deepening measured by Private Sector Credit (PSC) and Broad Money (M2) and economic growth, represented by the Real Gross Domestic Product (RGDP) of Nepal over the period from 1975 to 2023. Using advanced econometric techniques such as the Vector Autoregressive (VAR) model, Johansen co-integration, Granger causality tests, and the Vector Error Correction Model (VECM), the analysis revealed that financial deepening significantly impacts economic growth in both the short and long term. Descriptive statistics and unit root tests indicated a steady increase in PSC, M2, and RGDP, while Johansen co-integration confirmed a stable long-term relationship. Granger causality tests showed unidirectional causality from M2 to RGDP and bidirectional causality between PSC and RGDP, suggesting that financial sector development drives economic growth. The VECM highlighted significant long-term causality with an error correction mechanism indicating equilibrium restoration over time. Robust diagnostic tests validated the model, underscoring the crucial role of financial sector policies in sustaining economic growth. Thus, enhancing access to credit and expanding the money supply are essential strategies for fostering long-term economic development in Nepal. By employing rigorous econometric techniques, this study contributes to the existing literature on the subject and provides policymakers with evidence-based insights for formulating effective strategies to promote economic growth through financial sector development in Nepal.

The study's findings underscore the importance of financial deepening, particularly through the expansion of private sector credit and broad money supply, as a crucial driver of economic growth in Nepal. The positive long-term relationship between real GDP, private sector credit, and broad money highlights the need for policies that facilitate credit availability and the growth of financial markets. The

bi-directional causality between private sector credit and economic growth emphasizes that not only does improved credit access stimulate economic growth, but economic growth itself creates an environment for increased credit opportunities. This mutual reinforcement suggests that fostering financial sector development can create a virtuous cycle of growth.

From a policy perspective, the stability of the model's parameters over time, as confirmed by the CUSUM and CUSUM square tests, ensures the reliability of these findings. This stability is vital for policymakers seeking to implement long-term strategies aimed at strengthening Nepal's financial infrastructure. The results suggest that enhancing access to private sector credit and expanding the broad money supply are effective mechanisms for promoting sustained economic growth. Therefore, policymakers should focus on developing robust financial sector policies that prioritize financial deepening, ensuring that both monetary and credit conditions are conducive to continuous investment, consumption, and economic expansion.

Limitation and Further Research

This study, while comprehensive, is subject to several limitations. Firstly, the analysis is based on secondary data for Private Sector Credit (PSC), Broad Money (M2), and Real Gross Domestic Product (RGDP) over the period from 1975 to 2023, which may not capture the recent changes in financial policies and their effects on economic growth. Secondly, the study focuses on aggregate data, which may overlook sector-specific variations in financial deepening and growth dynamics. Thirdly, external factors such as political instability, global economic conditions, and natural disasters, which could influence the relationship between financial deepening and economic growth, are not fully accounted for in the model.

Policymakers should prioritize the development of robust financial sector policies that focus on expanding access to private sector credit and increasing the broad money supply. These strategies are essential for promoting sustainable economic growth. Additionally, targeted interventions aimed at specific sectors of the economy, particularly small and medium enterprises (SMEs), could enhance the effectiveness of financial deepening. Efforts should also be made to improve the regulatory framework, ensuring that the financial sector operates efficiently and contributes to long-term economic development.

While this study sheds light on the relationship between financial deepening and economic growth in Nepal, several research gaps remain. Future research should explore the impact of financial deepening at a more granular level, focusing on sector-specific data to uncover how different industries respond to changes in credit availability and monetary expansion. Moreover, studies could investigate the role of non-banking financial institutions and digital financial services in enhancing financial deepening. Finally, incorporating external shocks, such as global financial crises or climate-related events, into the analysis would provide a more comprehensive understanding of the factors influencing Nepal's economic growth trajectory.

Acknowledgement

I would like to express my sincere gratitude to all individuals and institutions who contributed to the successful completion of this research article.

Funding

This research was conducted without any financial support from external sources. No grants, sponsorships, or institutional funding were received to facilitate the completion of this study. All expenses related to the research were managed independently, and there were no external financial contributions or backing throughout the process.

Conflict of Interest

The authors declare that they have no conflict of interest related to this study. There are no personal, financial, or professional interests that could have influenced the research, analysis, or conclusions presented in this paper. All findings and interpretations are based solely on objective analysis and are free from any bias or outside influence.

Author Contributions

Conceptualization: Omkar Poudel, Pradeep Acharya

Data Curation: Omkar Poudel, Pradeep Acharya.

Formal Analysis: Yadav Mani Upadhyaya, Khom Raj Kharel, Omkar Poudel.

Investigation: Khom Raj Kharel, Yadav Mani Upadhyaya, Omkar Poudel, Pradeep Acharya.

Methodology: Yadav Mani Upadhyaya, Omkar Poudel.

Project Administration: Yadav Mani Upadhyaya, Khom Raj Kharel, Omkar Poudel.

Software: Omkar Poudel, Yadav Mani Upadhyaya, Pradeep Acharya.

Supervision: Khom Raj Kharel, Yadav Mani Upadhyaya, Pradeep Acharya.

Validation: Yadav Mani Upadhyaya, Pradeep Acharya.

Visualization: Khom Raj Kharel, Omkar Poudel.

Writing – Original Draft: Omkar Poudel, Yadav Mani Upadhyaya, Khom Raj Kharel.

Writing – Review & Editing: Yadav Mani Upadhyaya, Khom Raj Kharel, Omkar Poudel.

Authors' ORCID Information

Yadav Mani Upadhyaya *https://orcid.org/0000-0003-3089-3615*
Khom Raj Kharel *https://orcid.org/0000-0002-9806-7224*
Omkar Poudel *https://orcid.org/0009-0008-7873-0237*
Pradeep Acharya *https://orcid.org/0000-0001-8055-8757*

References

Alenoghena, R. O. (2014). Capital market, financial deepening and Nigeria's economic growth: Cointegration and error correction model approach. *Global Journal of Commerce and Management Perspective, 3*(3), 18-26. https://d1wqtxts1xzle7.cloudfront.net/38493526

Alexiou, C., Trachanas, E., & Vogiazas, S. (2022). Income inequality and financialization: A not so straightforward relationship. *Journal of Economic Studies, 49*(1), 95-111. DOI: 10.1108/JES-05-2020-0202

Alrabadi, D. W. H., & Kharabsheh, B. A. (2016). Financial deepening and economic growth: The case of Jordan. *Journal of Accounting and Finance, 16*(6), 158. http://www.na-businesspress.com/JAF/AlrabadiDWH_Web16_6_.pdf

Aye, G. C. (2015). Causality between financial deepening and economic growth in Nigeria: Evidence from a bootstrap rolling window approach. *Journal of Economics, Business and Management, 3*(8), 795-801. DOI: 10.7763/JOEBM.2015.V3.288

Bernards, N. (2024). Where is finance in the financialization of development? *Globalizations, 21*(1), 88-102. DOI: 10.1080/14747731.2023.2222481

Bezemer, D., & Samarina, A. (2016). Debt shift, financial development and income inequality in Europe. https://pure.rug.nl/ws/portalfiles/portal/36227971/16020_GEM_def.pdf

De Vita, G., & Luo, Y. (2021). Financialization, household debt and income inequality: Empirical evidence. *International Journal of Finance & Economics, 26*(2), 1917-1937. DOI: 10.1002/ijfe.1886

Golka, P., van der Zwan, N., & van der Heide, A. (2024). Financialization and assetization: Assets as sites of financial power struggles. *Economy and Society, 53*(1), 112-134. DOI: 10.1080/03085147.2024.2307783

Kargbo, S. M., & Adamu, P. A. (2009). Financial development and economic growth in Sierra Leone. *Journal of Monetary Economic Integration,9*(2), 30-61. https://www.scirp.org/reference/referencespapers?referenceid=1981905

Kharel, K., Poudel, O., Upadhyaya, Y., Nepal, P. (2024). Effect of private sector credit on economic growth in Nepal. *Financial Markets, Institutions and Risks, 8*(1), 142-157. DOI: 10.61093/fmir.8(1).142-157.2024

Khatri Chettri, K. (2022). Financial institutions depth and growth in Nepal: Sensitivity to the choice of depth proxy. *Cogent Economics & Finance, 10*(1), 2087288. DOI: 10.1080/23322039.2022.2087288

Kotarski, K. (2015). Financial deepening and income inequality: Is there any financial Kuznets curve in China? The political economy analysis. *China Economic Journal, 8*(1), 18-39. DOI: 10.1080/17538963.2015.1001051

Levine, R., (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature, 35*(2), 688-726. http://links.jstor.org/sici?sici=0022-6%2935%3A2%3C688%3AFDAEGV%3E2.0.CO%3B2-X

Manogna, R. L., & Kulkarni, N. (2024). Does the financialization of agricultural commodities impact food security? An empirical investigation. *Borsa Istanbul Review, 24*(2), 280-291. DOI: 10.1016/j.bir.2024.01.001

Marashdeh, H. A., & Al-Malkawi, H. A. N. (2014). Financial deepening and economic growth in Saudi Arabia. *Journal of Emerging Market Finance, 13*(2), 139-154. DOI: 10.1177/0972652714541339

Nzotta, S. M. (2004). Money, banking and finance: Theory and practice. *Owerri: Hudson—Jude Nigeria Publishers.* https://www.researchgate.net/publication/346673317

Nzotta, S. M., & Okereke, E. J. (2009). Financial deepening and economic development of Nigeria: An empirical investigation. *African Journal of Accounting, Economics, Finance and Banking Research, 5*(5), 52-66. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1534212

Odhiambo, N. M. (2005). Financial liberalisation and financial deepening: Evidence from three Sub-Saharan African (SSA) countries. *African -Review of Money Finance and Banking,* 5-23. http://www.jstor.org/stable/23026358

Olawumi, S. O., Lateef, L. A., & Oladeji, E. O. (2017). Financial deepening and bank performance: A case study of selected commercial banks in Nigeria. *Journal of Mathematical Finance, 7*(3), 519-535. DOI: 10.4236/jmf.2017.73028

Onwumere, J. U. J., Ibe, I. G., Ozoh, F. O., & Mounanu, O. (2012). The impact of financial deepening on economic growth: Evidence from Nigeria. *Research Journal of Finance and Accounting, 3*(10), 64-71. https://d1wqtxts1xzle7.cloudfront.net/30313049

Poudel, O. (2022). Impacts of foreign direct investment on economic growth of Nepal: A Johansen co-integration analysis. *Journal of Balkumari College, 11*(1), 50. DOI: 10.3126/jbkc.v11i1.53023

Poudel, O. (2023). Relationship between defense expenditure and economic growth in Nepal. *Unity Journal, 4*(1), 208–226. DOI: 10.3126/unityj.v4i01.52242

Poudel, O., Acharya, P., & Simkhada, D. (2023). Examining the drivers of economic growth in Nepal: A macroscopic econometric analysis. *Shaheed Smriti Journal,12*(9),37-53. https://ssmcchitwan.edu.np/wp-content/uploads/2023/12/2023-journal.pdf#page=31

Poudel, O., Kharel, K. R., Acharya, P., Simkhada, D., & Kafle, S. C. (2024). ARIMA modeling and forecasting of national consumer price index in Nepal. *Interdisciplinary Journal of Management and Social Sciences, 5*(1), 105-118. DOI: 10.3126/ijmss.v5i1.62666

Rabinovich, J., & Reddy, N. (2024). Corporate financialization: A conceptual clarification and critical review of the literature. *Post Keynesian Economics Society (PKES) Working Papers,* (PKWP2402). www.postkeynesian.net/downloads

Safdar, L. (2014). Financial deepening and economic growth in pakistan: An application of co-integration and VECM approach. *Interdisciplinary Journal of Contemporary Research in Business, 5*(12), 368-385. https://d1wqtxts1xzle7.cloudfront.net/34299039

Sahay, R., Cihak, M., N'Diaye, P., & Barajas, A. (2015). Rethinking financial deepening: Stability and growth in emerging markets. *Journal of Institutional Economics, 17* (33), 73-107.
DOI: 10.5089/9781498312615.006

Samuel, M. N., & Emeka, J. O. (2009). Financial deepening and economic development of nigeria: An empirical investigation. *African Journal of Accounting, Economics, Finance and Banking Research, 5* (5), 1-15. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1534212

Sawyer, M. (2018). Financialisation, financial crisis and inequality. *Inequality: Trends, causes, consequences, relevant policies,* 43-87.
DOI: 10.1007/978-3-319-91298-1_2

Shvets, S. (2021). How excessive endogenous money supply can contribute to global financial crises. *Banks and Bank Systems, 16*(3), 23-33.
DOI: 10.21511/bbs.16(3).2021.03

Timsina, N. (2014). Impact of bank credit on economic growth in Nepal. *Nepal Rastra Bank, Research Department, 22*, 1-23.
DOI: 10.3126/nrber.v26i2.52577

Torruam, J. T., Chiawa, M. A., & Abur, C. C. (2013). *Financial deepening and economic growth in Nigeria: An application of cointegration and causality analysis.* Third International Conference of Intelligent Computational Systems (ICICS'2013), April 29-30, Singapore. https://d1wqtxts1xzle7.cloudfront.net/100668196/5_20413556-libre.pdf?

Vipin G., Pokhriyal, A.K. & Arvind, M. (2015). Impact of financial deepening on economic growth in indian perspective: ARDL bound testing approach to cointegration. *Asian Development Policy Review, 3*(3):49-60.
DOI: 10.18488/journal.107/2015.3.3/107.3.49.60

Wairagu, R. (2016). Effects of Financial Deepening on the Entrepreneurial Growth in Kenya: A Case Study of SMEs within Nairobi County. *A master's degree Thesis Submitted to the School of Business, University of Nairobi.* http://erepository.uonbi.ac.ke/handle/11295/98982