Relationship between Financial Development and Economic Growth in Nepal

Udaya Raj Regmi[*]

Abstract

This paper attempts to explore the impact of financial development on economic growth in Nepal, using a regression analysis for the period 1987-2006. There is a weak link between financial development and economic growth in Nepal due to pervasive inefficiencies in the credit allocation mechanism, poor quality of institutions, weak infrastructures, and a general shift of resources from productive investment to consumption. In order to realize and enhance economic growth through financial development, financial reforms policy adopted by the Central Bank should be reformed comprehensively.

Introduction

The purpose of this study is to detect the relationship between the financial development and economic growth in Nepal. Economic growth of a country depends on the accumulation and productive use of physical and human capital and increase in total factor productivity. Financial development boosts up the rate of economic growth by mobilizing domestic and foreign savings, by allocating the resources into the most productive use, by spreading risk and providing liquidity, by reducing macroeconomic instability, by augmenting productivity, and by establishing and intensifying institutions and markets. Liberalization of financial markets allows financial deepening, which reflects an increasing use of financial intermediation by savers and investors and the monetization of the economy, and improves allocative efficiency by transferring capital from less productive to more productive sectors (McKinnon, 1973). The efficiency as well as the level of investment rise with the financial development that liberalization promotes.

Levine et al. (2000) suggests that financial institutions and markets can foster economic growth through several channels, i.e. by (i) easing the exchange of goods and services through the provision of payment services, (ii) mobilizing and pooling savings from a large number of investors, (iii) acquiring and processing information about enterprises and possible investment projects, thus allocating savings to their most productive use, (iv) monitoring investment and carrying out corporate governance, and

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* Dr. Regmi is an Associate Professor of Management, M.M.A.M. Campus (T. U.), Biratnagar, Nepal. Email: regmiudaya1@gmail.com.

(v) diversifying, increasing liquidity and reducing intertemporal risk. Each of these functions can influence saving and investment decisions and hence economic growth.

Literature Review

This section reviews some of the most important empirical evidences that support the strong positive linkages between financial development and economic growth. Patrick (1966) proposes the stage of development hypothesis that financial development leads to growth in the early stages of development, but that this impact diminishes gradually as an economy develops, and that the impact of growth on financial development begins to predominate after a certain level of development has been reached. Goldsmith (1969) convincingly proved the relationship between income and financial depth measured by the ratio between bank's assets and GDP, using a sample of 35 countries for the period between 1860 and 1963. He also showed that financial depth grows faster than income in periods of rapid growth.

King and Levine (1993a, 1993b) study 80 countries over the period 1960-1989 and control systematically for other factors affecting long-run growth. They construct four measures of the level of financial development and their results indicate that there is a strong positive correlation between each of the four financial development indicators and economic growth. All the financial development coefficients are statistically significant, implying an economically important relationship. In subsequent work, Levine et al. (2000) examine whether the exogenous component of financial intermediary development influences growth. They use a GMM dynamic panel estimator as well as a cross sectional instrumental variable estimator. Both estimation techniques produce consistent findings: the exogenous component of financial intermediary development is positively and robustly linked with economic growth. Using the same data set and techniques, Beck et al. (2000) conclude that financial intermediaries exert a large, positive impact on total factor productivity growth.

Kar & Pentecost (2000) examine the causal relationship between financial development and economic growth in Turkey, using Granger causality, cointegration and vector error correction methodology. The empirical results show that growth is found to lead financial development. Benhabib and Spiegel (2000) examine the relationship between an assortment of financial intermediary development and economic growth, physical capital accumulation and total factor productivity growth. They use a panel estimator that allows for the endogeneity of the regressors and find that financial development indicators are correlated with both total factor productivity growth and physical and human capital accumulation.

Deidda & Fattouh (2002) present a two-period overlapping generations model with risk averse agents and costly financial transactions that establishes a non-linear and possibly non-monotonic relationship between financial development and economic growth. They find that in the low-income countries there is no significant relationship between financial development and growth whereas in the high-income countries this relationship is positive and strongly significant.

Calderon & Liu (2003) also adopt an innovative econometric technique to analyze this issue, using data on 109 countries over the period1960-1994. Their results show that there is bi-directional causality i.e. financial development has a causal impact on growth, and growth also has a causal impact on financial development. However, the impact of financial development on growth is more important, relative to the impact of growth on financial development, particularly in developing countries where it explains 84% of the overall relationship and it explains 57% of the relationship in industrial countries. This suggests that financial sector under-development is more likely to hold growth back in developing countries.

Rioja & Valev (2004) examine whether there exist nonlinearities in the financial development-growth relationship by dividing countries into three roughly equal-sized groups based on income per capita. They use the same data set and GMM dynamic panel techniques as Levine et al. and find that the effect of finance on growth differs between the three income groups: no significant effect for low-income economies and a positive and significant effect for middle and high income.

Loayza & Ranciere (2005) estimate a model encompassing both short and long run effects through the use of a Pooled Mean Group estimator. They conclude that a positive long-run relationship between financial intermediation and output growth co-exists with a negative short-run relationship. Guryay et al (2007) empirically examines the relationship between financial development and economic growth in Northern Cyprus, using Ordinary Least Square Estimation Method (OLS). The result showed that there is a negligible positive effect of financial development on economic growth. Although Granger causality test showed that financial development does not cause economic growth, there is evidence of causality from economic growth to the development of financial intermediaries.

Shahnoushi et al. (2008) studies the causality relation between the financial development and economical growth in Iran using time series data of 1961-2004 through Augmented Dickey-Fuller Test, Cointegration and Vector Error Correction Models. They showed that there is not any mutual relation between financial development and economic growth in Iran and only the economical growth leads to financial development. Therefore, the financial development will not be an effective factor to the economical growth.

Kıran, et al. (2009) investigate the long-run relationship between the financial development and economic growth for a panel of 10 emerging countries over the period 1968–2007 by using recently developed panel data unit root tests and Pedroni panel data cointegration techniques. The results show that there is a long-run relationship between economic growth and financial development. They also find that financial development has a positive and significant effect on economic growth for all different financial indicators.

Pradhan (2009) examines the causal nexus between financial development and economic growth in India in a multivariate VAR model based on cointegration and causality test. The cointegration test finds the presence of long run equilibrium relationship between financial development and economic growth. The Granger causality test finds the existence of bidirectional causality between money supply and economic

growth, bank credit and economic growth, money supply and foreign trade, and market capitalization and foreign trade, and also confirms the unidirectional causality from market capitalization to economic growth, foreign trade to economic growth, money supply to market capitalization, bank credit to market capitalization, and money supply to bank credit. The policy implication of this study is that financial development is considered as the policy variable to enhance economic growth and economic growth could be considered as the policy variable to generate financial development in the economy.

Vazakidis &Adamopoulos (2009) investigated the causal relationship between financial development and economic growth for Greece for the period 1978-2007 using a Vector Error Correction Model. The estimated coefficient of error correction term found statistically significant with a negative sign, which confirmed that there was not any problem in the long-run equilibrium between the examined variables. The results of Granger causality tests indicated that economic growth causes stock market development and industrial production index, while industrial production index causes credit market development for Greece. Therefore, it can be inferred that economic growth has a positive effect on stock market development and credit market development through industrial production growth in Greece.

Empirical Model and Data

Deposit liabilities to GDP ratio (DY) and the ratio of private sector credit in the GDP (CY) are two different indicators of financial development that have been employed in this study to capture the different channels through which finance may affect growth. It seems most appropriate since they have been used widely for empirical research as prime indicators of financial development and data for it are relatively more plentiful. The first indicator is the ratio of private credit extended by commercial banks to GDP. This ratio stresses the importance of the role played by the financial sector in the financing of the private economy. The underlying assumption is that credit provided to the private sector generates increases in investment and productivity to a much larger extent than do credits to the public sector. It is also argued that loans to the private sector are given under more stringent conditions and that the improved quality of investment emanating from financial intermediaries' evaluation of project viability is more significant for private sector credits (Levine and Zervos, 1998). The second indicator of financial development is the ratio of bank deposit liabilities of commercial banks to GDP which equals demand deposit plus time and savings deposits. This indicator provides an alternative to a broad money ratio especially when dealing with developing countries since a large component of the broad money stock is currency held outside the banking systems. (e.g. Demetriades and Hussein, 1996; and Luintel and Khan, 1999). Therefore, bank deposit liabilities have been used as an indicator of financial development instead of money.

In this study the association between financial development and economic growth is measured by using the neoclassical growth model used by Ram (1999) which was slightly modified model of Odedokun (1996). The specification of the model can be written as follows;

$$RY = \beta + \beta_1(IY) + \beta_2(RPOP) + \beta_3(TO) + \beta_4 GOVY + \beta_5 INFL + \beta_6 HK_1 + \beta_7(DY) + \beta_8(CY) + \mu_1 \ldots \qquad (1)$$

Where, IY = the ratio of domestic investments to GDP; RY = annual growth rates of real GDP; RPOP = annual population growth rate; TO = trade openness which is measured as the sum of imports and exports as a percentage of GDP; DY = the ratio of deposits to GDP; CY = the ratio of Credit to GDP; MY = the ratio of money to GDP.

Besides, endogenous growth model has also been estimated. The specification of which is given below:

$$RY = \beta + \beta_1 GE + \beta_2 INFL + \beta_3 HK_1 + \beta_4 HK_2 + \beta_5 DY + \beta_6 CY + \qquad (2)$$

Where, RY = annual growth rates of real GDP; GE = size of government which is measured as the percentage share of government expenditure in GDP; Inf = Inflation which is measured in the analysis as the percentage change in Consumer Price Index; HK_1 = Primary enrollment; HK_2 = Secondary enrollment; DY = the ratio of deposits to GDP; CY = the ratio of Credit to GDP; MY = the ratio of money to GDP. The inflation rate and size of government expenditure are commonly used as indicators of macroeconomic stability (Easterly and Rebelo, 1993; Fischer, 1993; Allen and Ndikumana, 1998; and Levine et al 2000). Secondary school, lower secondary level and primary level enrollments are indicators of human capital are an important variable that is commonly added in these types of studies (Levine 1997: 707). Growth theory suggests a positive relationship between education and economic growth (Barro 1991). The effect of international trade on growth is captured by the openness variable, which is measured as the sum of imports and exports as a percentage of nominal GDP (Levine et al 2000).

This data uses annual data for GDP, population, trade, investment, deposit, credit and money for Nepal, covering the period 1987 through 2006. All the data are collected from International Financial Statistics, IMF; School Level Statistics, Department of Education, Ministry of Education, and Quarterly Economic Bulletin, Nepal Rastra Bank. The data are expressed in real terms deflated by the GDP deflator (1995=100).

Empirical Analysis

The trends of Credit-GDP Ratio and Deposit-GDP Ratio are depicted in Fig.1. It clearly indicates that these two ratios are increasing over the period under study.

In this study the relationship between financial development and economic growth in Nepal has been investigated. The empirical evidence does not support the view that financial development promotes economic growth in Nepal. The case of Nepal looks gloomy in terms of gains from financial intermediation. Almost all the models have demonstrated a high explanatory power. The explanatory power of the models with the growth rate of real GDP as the dependent variable ranges from 0.79 to 0.87 in Table 1 and 0.74 to 0.76 in Table 2. The results of neoclassical growth model are presented in Table 1:

Fig. 1: Trends in Credit-GDP Ratio (CRY) and Deposit-GDP Ratio (DEY)
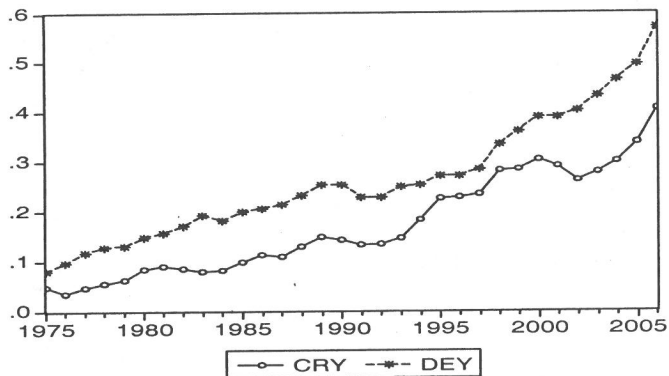
Source: Author's Calculations based on Data from Economic Survey (Various years), Ministry of Finance, GON, Kathmandu and Quarterly Economic Bulletin (Various years), Nepal Rastra Bank, Kathmandu, Nepal.

Table: 1 Regressions Results of Financial Development and Economic Growth in Nepal (1987-2006)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
IY	-0.10 (-0.18)	-0.08 (-0.15)	0.07 (1.19)	0.05 (0.09)	-0.23 (-0.39)
RPOP	-0.21 (-0.24)	-0.63 (-0.79)	-0.62 (-0.76)	-0.54 (-0.67)	--0.67 (-0.76)
TO	0.72 (2.08)***	-0.58 (-1.77)***	-0.80 (2.78)*	-0.59 (-3.33)*	-0.39 (1.92)***
GOVY	4.79 (2.08)***	-5.03 (-2.17)**	-6.88 (-3.56)*	-6.73 (-3.51)*	-6.78 (-3.23)*
Infl	0.005 (1.24)	0.006 (1.34)			
HK$_1$	0.002 (1.15)				
DY	-1.08 (-1.61)	-0.83 (-1.29)	-1.15 (-1.87)****	-0.61 (-3.01)*	
CY	0.38 (0.45)	0.52 (0.61)	0.78 (0.92)		-0.72 (-2.32)**
C	0.93 (2.45)**	1.10 (3.13)*	1.45 (5.77)*	1.34 (6.07)*	1.28 (5.03)*
R²	0.87	0.86	0.84	0.82	0.79
Adjusted R²	0.78	0.77	0.76	0.76	0.72
D-W Statistic	2.40	2.15	2.30	2.19	1.96
F-Statistic	9.37*	10.24*	10.98*	13.15*	10.59*

Source: Author's Calculations based on Data from Economic Survey (Various years), Ministry of Finance, GON, Kathmandu and Quarterly Economic Bulletin (Various years), Nepal Rastra Bank, Kathmandu, Nepal.

Note: * asterisk indicates significant at 1% level.   ** asterisk indicates significant at 5% level.
   *** asterisk indicates significant at 10% level. Figures in parenthesis indicate their respective t-statistics

Table: 2 Regressions Results of Financial Development and Economic Growth in Nepal (1987-2006)

Variables	Model 1	Model 2	Model 3
GOVY	-2.31 (-1.07)	-3.12 (-1.48)	-2.67 (-1.30)
INFL	0.01 (2.54)**	0.01 (2.60)**	0.012 (2.85)**
HK$_1$	0.001 (0.58)		0.004 (1.41)
HK$_2$		-0.005 (-0.81)	-0.01 (-1.52)
DY	0.06 (0.14)	0.41 (0.73)	0.72 (1.23)
CY	-1.03 (-1.68)	-0.84 (-1.60)	-1.33 (-2.16)***
C	0.41 (1.29)	0.65 (2.53)**	0.39 (1.29)
R^2	0.81	0.81	0.84
Adjusted R^2	0.74	0.75	0.76
D-W Statistic	1.85	1.85	1.92
F-Statistic	11.87*	12.20*	11.21*

Source: Author's Calculations based on Data from Economic Survey (Various years), Ministry of Finance, GON, Kathmandu and Quarterly Economic Bulletin (Various years), Nepal Rastra Bank, Kathmandu, Nepal.

Note:　*　　asterisk indicates significant at 1% level.
　　　**　　asterisk indicates significant at 5% level.
　　　***　asterisk indicates significant at 10% level. Figures in parenthesis indicate their respective t-statistics.

As can be seen from both the table presented above, all the coefficients of financial development are either negatively significant or not significant even at 10 percent level of significance. The literal interpretation of this result is that the development of the financial sector in Nepal has not promoted economic growth. The development in the financial system is actually inhibiting growth of the economy.

More specifically, the coefficient of credit to the private sector is not significant even at 10 percent level in some cases and is significant with a negative sign in some cases in both models. It is obvious that private credit has not significantly contributed to economic growth in Nepal because most of the credits are distributed to households for consumption rather than businesses for productive investment. Major problem of Nepal's financial system is that it is channeling resources to unproductive uses such as short-term trade and speculative business rather than a long-term investment. However, if efforts are directed at changing the prevailing pattern of credit to the private sector such that more emphasis is given to businesses rather than households, the mutual positive effect may become more pronounced. Attention must also be given to building domestic entrepreneurial

capacity, strengthening the legal system and bank supervision. Moreover, with the beginning of Maoist's civil war in Nepal, new investment opportunities in Nepal have declined which in turn affected banking activities. Restrictive government policies have also inadvertently discouraged advancement of credits to the private sector for productive investments.

The results show that the coefficient of deposits was not significant in some cases or negatively significant in other cases in both models. It indicates that deposits of the commercial banks are harming the economic growth in Nepal. A major problem lies with the use of the deposits mobilized in the economy. It is apparent that the bulk of the deposit resources of the commercial banks are not used for financing private domestic investment. Besides, the poor and the weak institutional capacity of the banking sector, poor entrepreneurial capacity, a weak and slow legal system to enforce contracts and debt repayment, the development of a non-loan repayment culture and all the difficulties in pursuing defaulted debt are the possible explanations for the poor contribution of financial intermediation to growth in Nepal.

Concluding Remarks

The financial development has not significantly contributed to the economic growth in Nepal due to pervasive inefficiencies in the credit allocation mechanism, poor quality of institutions, weak infrastructures, and a general shift of resources from productive investment to consumption. The financial reforms undertaken in the country since the mid-1980s seem not to have been successful in enhancing economic growth through improving efficiency or increasing resources for capital accumulation. Evidently, although there has been some improvement in the financial sector over the past few decades, the degree of financial development is still below the threshold needed to spur economic growth. Therefore, to achieve the desired benefits of financial development, efforts should be devoted to deepening financial sector by restricting government involvement in financial systems, investing in human resources, enhancing competition, and improving the quality of institutions.

References

Allen, D.S., & Ndikumana, L. (1998). *Financial intermediation and economic growth in Southern Africa.* Working Paper Series 1998-004, The Federal Reserve Bank of ST. Louis. Available On-line at http: ressearch.stlouifed.org/wp/1998/98-004.pdf.

Barro, R.J. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics* 106(2): 407-43.

Beck, T., Demirguc-Kunt, A., & Levine, R. (2004). *Finance, inequality and poverty: Cross-country evidence.* NBER Working Paper No. 10979. National Bureau of Economic Research, Cambridge, MA.

Beck T., Levine R., & Loayza, N. (2000). Finance and the Sources of Growth. *Journal of Financial Economics,* 58(1-2): 261-300.

Benhabib, J., & Spiegel, M. M. (2000). The role of financial development in growth and Iivestment. *Journal of Economic Growth,* 5: 341-360.

Calderon, C., & L. Liu (2003). The direction of causality between financial development and economic growth. *Journal of Development Economics,* 72: 321-34.

Demetriades, P., & Hussein, K. (1996). Does financial development cause economic growth? Time series evidence from 16 countries. *Journal of Development Economics,* 51: 387-411.

Deidda, L., & Fattouh, B. (2002). Non-linearity between finance and growth. *Economics Letters,* 74:339-45.

Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth: An empirical investigation. *Journal of Monetary Economics,* 32: 417-58.

Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics,* 32: 485-512 .

Guryay, E., Şafakli, O. V., & Tuzel, B. (2007). Financial development and economic growth: Evidence from northern Cyprus. *International Research Journal of Finance and Economics,* 8:57-62.

Kar, M., & Pentecost, E. J. (2000). Financial development and economic growth in Turkey: Further evidence on the causality issue. Loughborough University, Economic Research Paper No. 00/27.

King, R. G., & Levine, R. (1993a). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics,* 108 (3): 717-37.

King, R. G., & Levine, R. (1993b). Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics,* 32(3): 513-42.

Kıran, B., Nilgün, Ç. Y., & Burak, G. (2009). Financial development and economic growth: A panel data analysis of emerging countries. *International Research Journal of Finance and Economics,* 30: 87.94

Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature,* 35(2): 688-726.

Levine R., Loayza N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics,* 46(1):31-77.

Levine, R., Zervos, S. (1998). Stock markets, banks and economic growth. *American Economic Review,* 88: 537-58.

Loayza, N., Ranciere, R. (2004). *Financial development, financial fragility and growth.* Washington, DC: World Bank. Mimeo.

Luintel, K. B., Khan, M. (1999). A quantitative reassessment of the finance-growth nexus: Evidence from a multivariate VAR. *Journal of Development Economics,* 60:.381-405.

McKinnon, R. I. (1973). *Money and capital in economic development.* Washington D.C.: Brookings.

Odedokun, M.O. (1996) Alternative econometric approaches for analyzing the role of the financial sector in economic growth: time-series evidence from LDCs, *Journal of Development Economics,* 50(1):119-35.

Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change,* 14: 174-89.

Pradhan, R. P. (2009). The nexus between financial development and economic growth in India: Evidence from multivariate VAR Model. *International Journal of Research and Reviews in Applied Sciences,* 1(2): 141-51.

Ram, R. (1999). Financial development and economic growth: Additional evidence. *Journal of Development Studies,* 35(4):164-74.

Rioja, F. & Valev, N. (2004). Finance and the sources of growth at various stages of economic development. *Economic Inquiry,* 42:127-40.

Shahnoushi, N., Ebadi, A. G. M., dhaneshvar, E. S., & Motallebi, M. (2008). Causality between financial development and economic growth in Iran. *World Applied Science Journal,* 4(5):736-40.

Vazakidis, A., & Antonios, A. (2009). Financial development and economic growth: An empirical analysis for Greece. *American Journal of Applied Sciences,* 6 (7): 1410-17.