Financial Sector Development and Economic Growth in Fiji: Evidence from an Updated Study: 1980-2011

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Abstract

The relationship between financial sector development and economic growth has been intensively studied in economics. However, there are mixed evidence on the relationship, possibly due to omission of other relevant variables and use of small samples. This paper re-examines the relationship between financial sector development and economic growth in developing economy of Fiji for the period 1980-2011. Employing instrumental variable estimator and simultaneous equation system, we find evidence of cointegration when economic growth considered being dependent variable. In the long run financial sector developments have statistically significant and positive impact on economic growth.

Keywords: Economic Growth, Financial Sector Development

JEL Classification: E44

1. Introduction

Financial sector reforms were introduced in Fiji soon after the 1987 coup, as part of liberalisation process of the economy. The reform measures covered agriculture and other growth areas. Specifically, they included phasing out of subsidies for input applications as well as for investments in agriculture, and direct intervention in terms of controls, which restricted the operation of market forces in general.

In regard to the financial sector, there were notable reforms. These included removal by central bank of quantitative ceilings on loans by commercial banks and deposit and lending rates of interest. For the first time, open market operations were also introduced by Reserve Bank of Fiji (RBF) in its own paper of various maturities for influencing the short term interest rate in the market place. Further, licensing procedures for setting up new financial sector institutions including opening of commercial banks were relaxed. All these measures blazed a new trail of reforms of unprecedented nature which placed Fiji far ahead of the six of the Pacific island countries (PICs) with independent currencies of their own amongst 14 small island nations.

This paper, which revisits the subject by updating various studies, seeks to assess the impact of the financial sector development since the 1980s on the growth of Fiji's economy. The paper is organized on the following lines: the second section presents a brief review of theoretical literature on the nexus between financial sector development and growth with a summary of the findings of some leading empirical studies including those on Fiji; the third section deals with Fiji's financial sector; the fourth section outlines the methodology and modelling procedures; the fifth section reports the empirical results; and the last section is conclusion with policy implications.

2. A Brief Review of Theoretical and Empirical Literature

The relationship between finance and economic growth is of interest ever since the days of Bagehot (1873), who articulated that financial development played an important role for channelling the industrialisation process in England.

Focusing specifically on innovations which take the economy to greater heights, Schumpeter (1911) argued that a well-developed financial system encouraged technological progress through provision of financial resources to entrepreneurs.

In a succinct summary, Levine (2005) describes how financial institutions and markets can foster economic growth through several channels. These include: (i) easing the exchange of goods and services through the provision of payment services, (ii) mobilising 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 (v) diversifying, increasing liquidity and reducing inter-temporal risk.

There are four distinct views on the finance-growth nexus: (i) supply-leading view; (ii) demand following view; (iii) view on mutual impact of finance and growth, (iv) view on no-relationship between finance and growth. While the supply leading view supports a positive impact of financial development on economic growth [(Schumpeter, 1911; Goldsmith (1969), Mckinnon (1973) and Shaw (1973), Gurley and Shaw (1955)], the financial development view stresses the importance of efficiency behind allocation of resources into more productive sectors, which cause economic growth. Patrick (1966) explains this view by noting that financial sector development enables "transfer resources from the traditional, low growth sectors to the modern, high growth sectors and stimulate an entrepreneurial response in these modern sectors." The demand following view states that finance actually responds to changes in the real sector (Odhiambo (2004), Liang and Teng (2006) and Zang and Kim (2007).

The third view supports the bi-directional relationship between financial development and economic growth [Wood (1993), Demetriades and Hussein (1996), Akinboade (1998), Luintel and Khan (1999), Rousseau and Vuthipadadorn (2005) and Apergis *et al.* (2007)].Finally, the last view rejects the existence of a finance-growth relationship ((Robinson, 1952; Lucas, 1988; Stern, 1989, Kıran *et al*, 2009).

Our review of some of the leading empirical studies, which studied the connection between financial sector development and growth shows that the study findings are not conclusive and the results of many empirical studies are ambiguous. While the cross-country and panel data studies find positive relationship between financial development and growth, time-series studies offer contradictory results. Chistopoulos and Tsionas (2004) examine the long-run relationship between financial development and economic growth for 10 developing countries by using panel cointegration analysis and find a uni-directional relationship from financial development to economic growth. Al-Awad and Harb (2005) investigate the relationship between financial development and economic growth in the Middle East by applying panel cointegration and time-series cointegration and show that financial development and growth may be related in the long run.

Empirical analysis on the relationship between financial sector development and economic growth originates from early studies by Cameron (1967), Goldsmith (1969), McKinnon (1973), and Shaw (1973), who found that financial sector development led to faster economic growth. Luintel and Khan (1999) examine the relationship between financial development and economic growth by using a sample of ten less developed countries and find a bi-directional causality between financial development and growth. They argue that well developed financial markets are necessary for the overall economic growth of developing economies. Apergis *et al.* (2007) find a positive relationship between financial depth and economic growth by using panel data cointegration method for 15 member-countries of the Organization for Economic Co-operation and Development (OECD) and 50 non-OECD countries. Other studies on the finance-growth nexus with country specific time series data include; Ang and McKibbin (2006) which used time series techniques for Malaysia. They found that finance follows growth and that there was no evidence that finance causes economic growth. Bhattacharya and Sivasubramanian (2003) have studied the causal relationship between financial sector development and economic growth in India for the period 2970-1971 to 1998-1999. They used unit root and cointegration techniques to conclude that financial sector development caused GDP and not the other way around. Yang and Yi (2007) examined these causal relationships in Korea using annual data from 1971- 2002 and super-exogeneity method. They provide evidence that financial sector development caused economic growth.

In Fiji, studies on the subject include the following: Waqabaca (2004), Jayaraman (2007), Rao and Takirua (2010), Rao (2010), Sharma and Goundar (2011), Singh, Kumar and Chen (2012), Sharma and Goundar (2012), and Goundar (2012).

As it is elsewhere, there is no consensus on the direction of causality between financial sector development and economic growth. Jayaraman (2007) provided evidence in support of finance leading growth in Fiji. Sharma and Goundar (2012) provided insight into cross country study using Generalized method of Moments (GMM) and they concluded that financial sector development does matter for growth in the small, open pacific island countries. Singh, Kumar and Chen (2012) presented evidence that financial development induces level of output.

However, Waqabaca (2004) using empirical estimation procedure which did not include key variables of capital and labour, found conflicting results for the period 1970-2000. According to her, there was no evidence of short run relationship, predominantly running from economic growth to financial sector development and in only one case where private sector credit caused investment. Rao and Takirua (2010) and Rao (2010) pointed out that the non-inclusion of relevant financial sector variables could lead to gross misspecification and hence biased results. Goundar (2012), who included variables of capital and labour found weak causal relationship between financial sector development and economic growth during the period 1970-2005. Essentially, given the plethora of reforms on financial sector implemented in Fiji over the period 1980-2011 and the conflicting results on the direction of causality between financial sector development and economic growth, it is important to revisit and update the analysis of the finance-growth nexus.

3. Financial Sector Development in Fiji

The financial sector of Fiji, whose selected key indicators are given in Table 1, comprises three major sectors, namely the banking system, insurance industry and non-bank financial institutions. The banking crisis of 1995 involving the state-owned National Bank of Fiji, which once accounted for one third of total bank credit, was a wake-up call to the nation. Improvements in bank supervision and regulatory reforms were quickly undertaken (Chandra *et al.* 2004). Following the restructuring program, the failed bank's operations were taken over by an Australian owned commercial bank. As of 2006, all the five commercial banks[1] are all foreign- owned. They operate according to the Australian banking practices and all of them are well capitalized. Capital adequacy ratios were maintained above the minimum requirement of 8 percent, at an average of 12 percent. Management performance is rated satisfactory in view of strong performance in the components capital adequacy, asset quality, management, earnings and liquidity known as CAMEL (Reserve Bank of Fiji 2006).

Table 1: Fiji's General Key Indicators

Surface Area (sq km)	18,270
Population (2012)	874,742
Total GDP at current prices (US $ million) 2012	3,881
Per capita GDP in current price (US$)	4,437.8
Human Development Index (Rank)	96
Aid per capita (US$) 2009	84
Aid per capita (% of GNI) 2009	2.5

Source: WDI (2012), UNDP (2013)

All the five foreign-owned commercial banks are supervised from their respective headquarters. Thus, there has been no particular concern in regard to the soundness of their operations in the host country. However, the general impression has been that they have been conservative with relatively high lending rates and were not keen to serve rural interests. To meet the growing criticisms, banks have shown greater interest in extending their operations beyond urban areas by running mobile banks in rural areas as well. Sectors to which banks have been lending include private individuals for consumer credit, housing, wholesale, retail, hotels and restaurants and building and construction.

There are three non-bank licensed credit institutions[2] (LCIs), which cater to the credit needs of private sector in various areas. These include consumer credit, real estate, transport and storage, wholesale, retails and hotels and restaurants, and building and construction.

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[1] Australian and New Zealand Banking Group Limited (ANZ), Westpac Banking Corporation (Westpac), Bank of Baroda (BOB), Habib Bank and Colonial National Bank

[2] LCIs include Merchant Finance Investment Company Limited, Credit Corporation (Fiji) Limited and Home Finance Company Limited.

The capital adequacy ratio is well above the minimum requirement of 10 percent. In regard to other criteria of asset quality, earnings and liquidity, LCIs have recorded satisfactory position (RBF 2011)

3.1. Growth in Credit

The stock of total domestic credit during early phase economic growth of Fiji since independence in 1970 was less than 25 percent of GDP. It rose gradually to 30 percent of GDP in the 1980s (Table 2). During 1980-1984, it was about 32 percent of GDP, with credit to private sector being around 25 percent of GDP. Following the general liberalization of the economy in 1988, domestic credit comprising both public and private credit rose to new heights. As a proportion of GDP, credit to private sector reached historically a high figure at 47 percent of GDP during the next five-year (1985-1989) period. However, growth in credit in subsequent years was no longer remarkable, reflecting the general uncertainties, mainly due to political instability, which was responsible for poor private investment climate.

With the enactment of a new constitution in 1997, which were followed by fresh elections and return of an elected government in 1999, there were signs of an immediate recovery. However, the expectations were short lived, as the country witnessed a civilian coup in 2000. Another round of elections held in 2001 led to the restoration of democracy. The newly elected government in 2001 took bold steps to revitalize the economy with aggressive fiscal policies to lift the economy out of the past morass. During the next four years, the economy registered positive growth rates, with tourism bouncing back and reaching new heights in 2005

Increases in domestic credit during 2001-2005 accordingly resulted in the quick bounce of the economy. Total domestic credit as a proportion of GDP, which plunged from 44 percent of GDP in 2000 to 41 percent in 2001, rose steadily during the next four years and was about 59 percent of GDP in 2005. Credit to public sector registered increases, as banks and non-bank institutions stepped up investment in government bonds. Credit to private sector also went up, as it recorded increases from 33 percent of GDP in 2001 to 49 percent of GDP in 2005.

The credit boom during 2001-2005 was influenced by several factors. First, there was a return of confidence in the banking system, reinforced by the legal, supervisory and accounting frameworks governing the bank and credit institutions. The frameworks were strengthened earlier by increased regulatory powers of monetary authority; stricter prudential regulations and supervision; rise in minimum capital adequacy requirements; and introduction of international accounting standards. Secondly, the credit boom also reflected a catching up from the past-depressed levels of investment climate due to political instability. Thirdly, economic recovery since 2001, which was aided by increase in inward remittances from the overseas Fijian residents and rise in tourism earnings, combined with high global liquidity resulting in low interest rates, provided a boost to expansionary activities. Fourthly, greater supply of credit was matched by increased demand from both businesses and households, as confidence returned to households to service their debt. Fifthly, banks offered new products with more flexible terms, which opened up new possibilities of financing their pent up demand for housing and other long term investment needs.

Table 2: Annual Growth rate, Broad Money, Bank credit to private sector and Exports as percent of GDP: 1980-2011

Year	Annual Growth Rate (percent)	Broad Money M2 (% of GDP)	Bank Credit to private Sector (% of GDP)	Exports (% of GDP)
1980-1989 (Ave)	0.76	38.20	24.10	46.80
1990-1999 (Ave)	3.16	49.40	36.40	58.50
2000-2004(Ave)	1.96	48.90	31.40	60.20
2005	0.70	58.39	*39.26*	52.91
2006	1.85	67.58	*45.12*	49.83
2007	-0.85	71.69	*45.15*	48.28
2008	1.03	64.25	*46.19*	51.22
2009	-1.27	69.85	*49.45*	45.56
2010	-0.18	66.94	*47.37*	53.87
2011	2.02	66.34	*45.54*	47.52

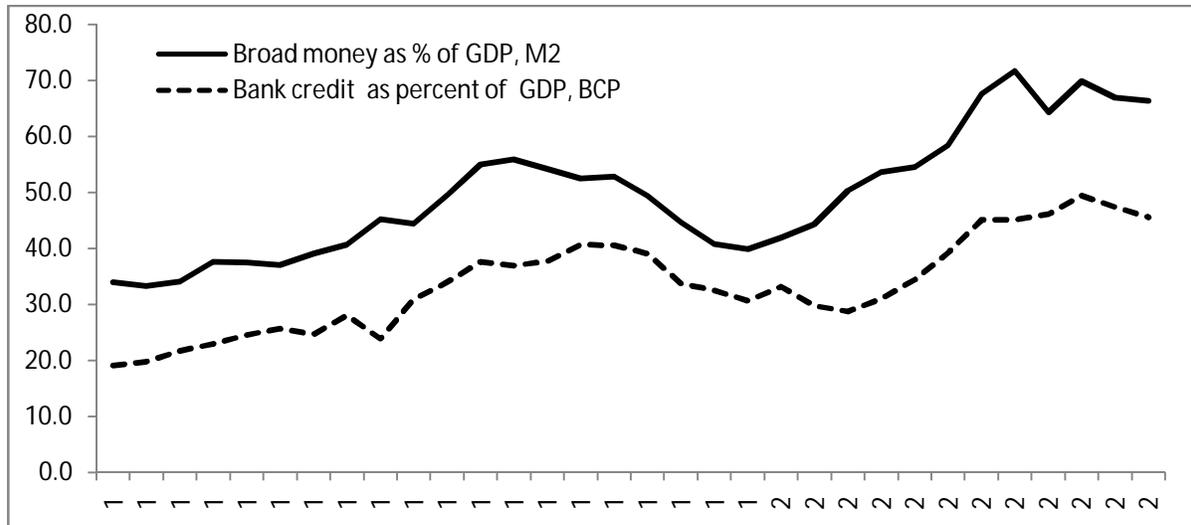**Figure 1: Broad Money and Bank Credit to Private Sector (Percent of GDP)**

Figure 1 presents the trend in monetary statistics of Fiji during the period under study. The monetary aggregates are shown as percentage of GDP. Broad money (M2) as percent of GDP compromises Narrow money (M1) plus savings and time deposits. The deepening process of the financial sector in early 1980s, as reflected by ratio of broad money to GDP has been slow. However, following the liberalization of the financial sector in 1990s, the ratio of broad money to GDP has been on rise. It declined 2000, but picked up again since economic recovery in 2001. The average for Fiji during the period was 5.17 percent with the minimum of 33.88 percent in 1980 and a maximum of 71.69 percent in 2007.

A similar trend is observed in bank credit as percent of GDP. The ratio of bank credit to GDP includes credit to private sector only. Credit is essential for the economy to function well. It funds new investment and allows people to purchase other items. If the bank credit to private sector is about 70 percent and more, then the country has a relatively well developed financial system. The amount of credit can even exceed 200 percent of GDP in some very advanced economies.

In some developing economies, the credit ratio has been observed to be less than 15 percent of GDP (The Global Economy: Fiji Economic Indicators, 2013). In Fiji, the ratio of private sector credit to GDP was chronically low in the earlier years. However, the trend has been an increasing one for the period under study. For instance, during 1980s on average the ratio of private sector credit to GDP was low as 24.10 percent. But following the reforms in financial sector the ratio on average raised up to 36.10 percent in 1990s and 39.26 percent in recent years. Following that, the ratio of private sector credit to GDP has been in the range of 45 percent to 50 percent.

4. Modeling, Methodology and Results

To assess growth impact of the financial sector development, a standard production function in an autoregressive form is employed with augmentation of including broad money supply, exports, governance level and two dummy variables to capture positive and negative structural breaks' impact. Given the existence of endogeneity problem imposed on two explanatory variables, the final model, if cointegration relationships are evidenced, to be presented is as follows:

$$\ln GDPPC_t = \alpha_0 + \alpha_1 \ln KPC_t + \alpha_2 M2/GDP_t$$
$$+ \alpha_3 EXPORTSR_t + \alpha_4 Polity2_t + \alpha_5 \ln GDPPC_{t-1} + \varepsilon_t$$

(1)
$$\ln KPC_t = \beta_0 + \beta_1 \ln GDPPC_{t-2} + \beta_2 \ln CPI_1$$
$$+ \beta_3 Lendingr_t + \beta_4 Polity2 + u_t$$

$$\ln GDPPC_{t-1} = \gamma_0 + \gamma_1 \ln GDPPC_{t-2} + \gamma_2 Lendingr_t + \gamma_3 \ln KPC_{t-1} + v_t$$

Where

ln$GDPPC_t$ = natural logarithmic GDP per capita at 2005 prices;
lnKPC_t = natural logarithmic capital stock per capita at 2005 prices.

It is constructed based on data on gross fixed capital formation (GFCF), depreciation rate of 0.04, and benchmark year's capital stock at 1980 = GFCF * 8

$M2/GDP_t$ = the natural logarithmic per capita net official development assistance and official aid received at 2005 prices

$EXPORTSR_t$ = ratio of exports to GDP (percent)

*Polity*2 is extracted from the Polity IV project and used to measure the political regime of a country. The Polity2 variable ranges from 10 (strongly democratic) to -10 (strongly autocratic);

CPI = consumer price index with 2005 = 100; and

Lendingr = lending interest rate (percent)

Accordingly the short-run relationship can be examined through an error correction model (ECM):

$$(2) \quad \Delta \ln GDPPC_t = \phi + \sum_{j=1}^{P} \varsigma_j \Delta \ln GDPPC_{t-j} + \sum_{i=1}^{K} \sum_{j=0}^{P} \xi_{ij} \Delta X_{j,t-i} + \eta \hat{\varepsilon}_{t-1} + e_t$$

4.1. Unit Root Test and Cointegration Test

The augmented Dickey Fuller (ADF) test is employed for testing unit roots in the levels of the variables and in their first difference. The null hypothesis of unit root is not rejected at levels while it is rejected in the first difference of all variables, indicating that all the variables tested are found to be non-stationary in levels and stationary in their first difference. An OLS estimation of the first equation in Equation (1) yields an estimated residual series *εhat*. The ADF test on *εhat* suggests that the estimated residual is stationary at level, indicating the evidence of a cointegration relationship.

Table 3: Results of Augmented Dickey-Fuller Unit Root Tests

	Level				*First Difference*			
	Drift/ Trend	*# lags*	*tau-stat*	*p*-value	*Drift/ Trend*	*# lags*	*tau-stat*	*p*-value
ln*GDPPC*	Drift	2	-0.486	0.311	Constant	2	-3.958	0.0016
ln*KPC*	Drift	2	0.834	0.7938	Constant	2	-3.085	0.0277
M2/GDP	Drift	2	-0.802	0.2146	Constant	0	-4.400	0.0003
Exports/GDP	Constant	2	-2.216	0.2004	Constant	0	-5.081	0.0000
ehat	Constant	0	-10.973	0.0000				

4.2. Endogeneity

Tests for endogeneity and validity of instrumental variables are conducted by using the Hausman test and the Sargan test without the presence of heteroskedasticity. We tested for endogeneity for each explanatory variable in the first equation of Equation (1), and found capital stock and the lagged dependent variable are individually endogenous in the equation. To present test results of joint exogeneity and overall validity of instrumental variables, the Hausman F stat is 4.8099 with a p-value of 0.039, while the Sargan chi-sq is 4.381 with p-value of 0.3569, therefore the null hypothesis of joint exogeneity of capital stock and the lagged dependent variable is rejected at the 5% level while the null of over-identification of instrumental variables is not rejected at the 5% level.

4.3. Regression Results

Given the presence of endogeneity, an instrumental variable estimator was employed in estimating the relationship between GDP per capita and the above stated control factors. The three equations composing Equation (1) were simultaneously estimated and regression results presented as follows with no evidence of problems such as autocorrelation in errors, heteroskedasticity, multicollinearity, incorrect functional form and non-normality of errors.

$$\ln \hat{G}DPPC_t = 1.72 + 0.31 \ln KPC_t + 0.002 M2/GDP_t + 0.002 EXPORTSR_t$$
$$z = (4.41)\,(3.80) \qquad (5.08) \qquad\qquad (5.77)$$
$$+ 0.007 Polity2 + 0.42 \ln GDPPC_{t-1} + 0.036 Dum1 - 0.069 Dum2$$
$$(6.28) \qquad\qquad (3.43) \qquad\qquad (2.25) \qquad (-6.96)$$
$$R^2 = 0.9794 \qquad n = 30$$

(3)
$$\ln \hat{K}PC_t = 3.32 + 0.70 \ln GDPPC_{t-2} + 0.09 \ln CPI_1 - 0.02 Lendingr_t - 0.009 Polity2$$
$$z = (3.52)\,(6.00) \qquad\qquad (1.81) \qquad (-3.13) \qquad (-4.20)$$
$$R^2 = 0.9529 \qquad n = 30$$

$$\ln \hat{G}DPPC_{t-1} = 3.07 + 0.54 \ln GDPPC_{t-2} - 0.01 Lendingr_t + 0.11 \ln KPC_{t-1}$$
$$z = (4.65)\,(4.46) \qquad\qquad (-4.16) \qquad\qquad (1.13)$$
$$R^2 = 0.9209 \qquad n = 30$$

Focusing on the per capita GDP equation, we note that a one percent increase in capital per capita is associated with around 0.31 percent increase in GDP per capita, keeping other factors remain unchanged and endogeneity of capital per capita is controlled. Similarly, a one percentage increase in M2/GDP and exports/GDP are respectively associated with around 0.002 percent increase in GDP per capita. A unit increase in Polity2 would lead to around 0.007% increase in GDP per capita. Positive and negative structural breaks are also found to have significant effect on per capita GDP in Fiji over the 30-years period under study.

The second equation in Equation (3) suggests the effect of GDP per capita on capital per capita. It is found that, holding other factors constant and endogeneity of GDP per capita controlled a one percent increase in GDP per capita two periods back would lead to around 0.70 percent increase in capital per capita.

The short-run effect of broad money on per capita GDP in Fiji was further identified via the error correction model in Equation (2) and results are presented as follows.

$$\Delta \ln \hat{G}DPPC_t = 0.004 + 0.28 \Delta \ln KPC_t + 0.002 \Delta M2_t + 0.002 \Delta EXPORTSR_t$$
$$t-stat = (-5.40)\,(0.92) \qquad\quad (1.28) \qquad\quad (1.75)$$
$$+ 0.007 Polity2_t + 0.03 Dum1 - 0.06 Dum2 - 0.91 \hat{\varepsilon}_{t-1}$$
$$(4.79) \qquad\qquad (1.83) \qquad (-6.49) \qquad (-5.40)$$
$$n = 30 \qquad \overline{R}^2 = 0.7345$$

The above estimated error correction model suggests that, given other control factors unchanged, a one percentage increase in the change of M2/GDP and change of exports/GDP are respectively associated with around 0.002 percentage increase in growth of GDP per capita; a one percentage increase in growth of capital per capita is associated with around 0.28 percentage increase in growth of GDP per capita. Polity2 and two dummy variables still have significant impacts on growth of GDP per capita similar to those on GDP per capita. The error correct term, *εhat*, is found to have a significant impact on growth of GDP per capita. The estimated coefficient of -0.91 suggests a fast speed of adjusted, indicating that a disequilibrium will be corrected in around 1.1 years. And the ECM term explains 73.45 percent of variation in growth of GDP per capita.

The results establish positive association between the financial sector variable, namely broad money expressed as a ratio of GDP, which is also referred to financial deepening, and per capita GDP.

5. Conclusion and Policy Implications

This paper revisited the subject of financial sector development and output growth during a three decade period (period 1980-2011). The empirical investigation shows evidence of cointegration between growth and financial sector development variable and capital stock per capita and exports as percent of GDP. We then employ simultaneous equation system technique to explore the long run relationship among the above mention variables. We find in the long run capital stock, export as percent of GDP and broad money as percent of GDP has significant, positive effect on GDP. The short run effect of financial sector development/reform on economic growth was also identified via error correction model.

The result suggests that broad money as ratio of GDP, a proxy for financial sector development/ reform have significant positive impact on economic growth. Polity2 index and two dummy variables to capture the effects of structural breaks also have expected and significant impacts on growth of GDP.

The policy implications are clear and straight forward: liberalisation of the economy in general and reforms in financial sector have been beneficial and should be carried forward. In recent years, there have been some setbacks: discontinuance of open market operations which were employed to influence market rate of interest rate; announcement of a predetermined overnight policy rate; directed credit; and other interventions. These appear to be only aberrations. With return to normalcy following the September, 2014 election and restoration of civilian administration, there would be another round of liberalisation measures and reforms, which would take the economy to grow further.

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