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The Relation between Financial Development and Economic Growth: An Econometric Analysis of Macro and Macroprudential Indicators in Emerging Economies

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Abstract

Over the last few decades researchers have reached in a consensus that financial development, in its form of bank credit relative to GDP, has a strong positive relationship with economic growth. However, financial innovations in the globalized economy have changed the situation gradually and made the relationship inconclusive. In this paper, we re-examine the relationship between financial development and economic growth over 23 emerging economies and estimate that in some points 'excessive finance' can be happened. Our cross-country panel regression using GMM model suggests that financial development no longer has a positive effect on economic growth when the credit to the private sector reaches about 165 percent of GDP. When we consider for non-linearity, we find an inverted U-shaped relationship between finance and growth. Moreover, we also introduce the credit-to-GDP gap (i.e. deviation of credit gap from its long term trend) as one of the control variables and find that the credit-to-GDP gap beyond 2 percent of GDP has a significant negative relationship with real economic growth. Finally, we suggest macroprudential policies are to be designed to limit the procyclicality in the economy without affecting the real growth.

Keywords: Panel Data Model, Instrumental Variables (IV) Estimation, Business Cycles/ Fluctuations, Financial Development, Economic Growth, Empirical Studies of Economic Growth, Financial Crises.

JEL Classification: C23, C26, E32, O16, O00, O4

Introduction

Over the last few decades researchers have reached in a consensus that financial development, either in its form of bank credit relative to GDP or monetary aggregates in terms of GDP, has a strong positive relation with economic growth. However, financial innovations in the globalized economy have changed the situation gradually and made this role inconclusive. The changing scenario is that financial development helps achieve higher

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economic growth but excessive finance without increasing the GDP (in proportionate term) may not increase the economic growth.

During the emerging stage of the economy, credit growth is helpful to achieve higher economic growth. This is because, private entrepreneurs can get their fund they need to expand their business; households can have a secured place for their money, making them more willing to provide finance to the corporate sector through the banks and so on.

There are excellent number of researches where it is found that financial development boosts economic growth. A study on South Asian countries revealed that output growth could be increased from current level to a higher level by substantially increasing the investment share to GDP (Ahmed 2007).

Financial development plays an essential role in promoting economic development. In pursuits of a causal relationship between financial development, King and Levine (1993) found that financial development stood as a predictor of economic growth. On the other hand, a time series analysis on 16 countries found no evidence of a causal relationship between finance and growth (Demetriades 1996).

Researchers have also found a steady state relationship between private credit and GDP in a particular economy such as Ireland (Robert K. 2013).They found that growth rates of GDP and private credit appeared as highly correlated suggesting the possibility of a long-run equilibrium relationship. In their works, they also have examined the possible scenario of expansion of credit that could be linked to that of deposits but did not find such a link in case of Irish economy, although it is assumed that there might have been significant benefits of having such a link.

Some economists have overemphasized the role of finance on economic development (Rodrick 2009). On the other hand, an empirical study on 75 countries over the period 1960-2000, using the panel error correction model and allowing for heterogeneity in parameters in growth regressions accounted for the contrasting effects based on the distinction between the short and long-run effects of financial intermediation (Loyaza 2006).They also found the long run positive relationship between financial development and growth while short run impact remained significant but negative. Finally, they suggested that short run impact might be due to cross-country heterogeneity in general and higher volatility of business cycles in particular.

A group of ESRB's (European Systemic Risk Board) Advisory Scientific Committee conducted a research in 2014 to answer the question whether has banking system grown too much in Europe. They found that over the past 15 years, the European Union's banking sector has undergone radical transformation, in the form of ballooned size with more leveraged. They also have suspected about inadequate prudential supervision, politics, technology and competition for the overbanking situation that the combined scenario could be a potential threat for banking crisis (European Systemic Risk Board 2014).

However, another empirical research has shown that excessive credit (in terms of GDP)

is detrimental to aggregate productivity growth and per worker income growth. (Stephen G Cecchetti and Enisse Kharroubi 2012). Moreover, a rapid increase in credit could be a leading cause of distress in a particular economy when a significant portion of credit is grasped by moral hazard and to unproductive and concentrated sector. Researchers have found a link between credit booms and financial crises and regarded excessive credit an 'Early Warning Indicator' for systemic crisis. Empirics also have suggested that excessive credit growth tends to experience more severe financial crises, which in turn are associated with deeper recessions (Rogoff 2011).

In this paper, we have re-examined the relationship between financial development and economic growth for 23 emerging economies and endeavored to find out whether there is a threshold above which financial development no longer has a positive effect on economic growth. We have quantified the financial development by using the credit to the private sector extended by deposit money banks and other financial institutions, in terms of GDP. Considering the pros and cons of using this variable as a metric of financial development, we have chosen it due to its availability for a large cross-section of countries. We have followed Jean-Louis Arcand, Enrico Berkes and Ugo Panizza (2012) to estimate whether too much finance is good for economic growth. They found not only a positive and robust correlation between financial depth and economic growth in countries with small and intermediate financial sectors but also obtained a threshold level of financial development above which finance started having a negative effect on economic growth (Arcand JL., Too Much Finance? 2012).

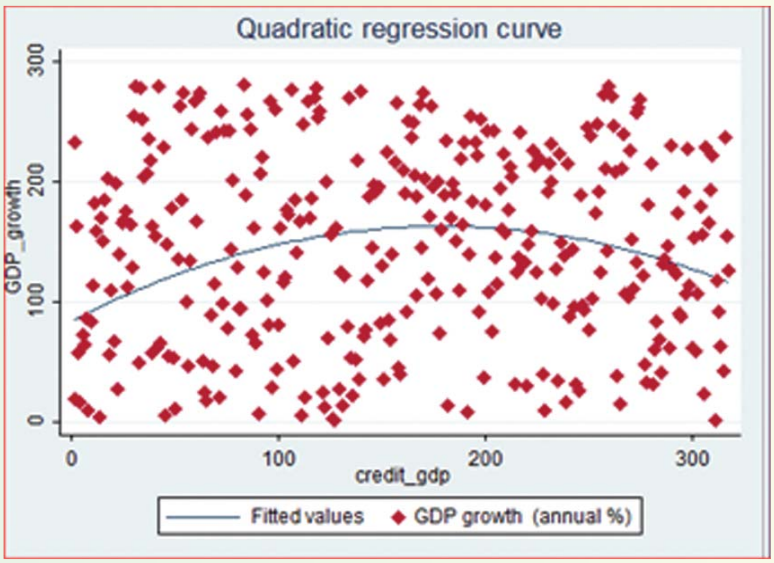
Finally, as an addition to growth regression, we have brought into light the necessity of adopting the macroprudential tools that could be activated in the period of economic boom and deactivated in the period of recession. Such policy tool could mitigate the procyclicality and ensure a sustainable economic growth.

Data Description

We have started our research by assuming the relationship between the financial development and economic growth to see whether there is a point where larger is no longer better. We have chosen the variable namely the credit-to-GDP as the main explanatory variable that captures the 'credit to the private sector extended by deposit money banks and other financial institutions, in terms of GDP' as a proxy of financial development. The dependent variable is real economic growth. Description of the dataset has been shown in table 3.

Scatter plotting of the fitted values in the quadratic regression is shown below.

Figure 1: Scatter plotting of the Quadratic regression curve between credit-to-GDP and GDP growth (authors' drawing by using STATA).



Cross-country OLS Regression

We have studied a large number of literatures that have shown the presence of a causal positive relationship between financial development and economic growth except a few that have found no relationship between them. In some of the studies, the authors have used the log of financial development and therefore assuming a non-linear relationship between financial development and economic growth. However, apart from their works, we also have checked the higher polynomial terms to investigate the non-monotonic relationship between financial development and economic growth.

We have quantified the financial development by using the credit to the private sector extended by banks and other financial institutions in terms of GDP, referred to as credit-to-GDP. Considering the pros and cons of using this variable as a metric of financial development, we have chosen it as a proxy of financial development due to its availability for a large cross-section of countries.

We have initiated our cross country analysis following the paper titled "Stock Markets, Banks and Growth: Panel Evidence" prepared by (Beck 2004). In our model, we have regressed GDP growth with credit-to-GDP ratio and square of credit-to-GDP ratio. We assumed the endogeneity problems in the cross-sectional data, therefore, we thought simple OLS was the most transparent way to look at the data at the first stage. Afterward, we also have used the higher polynomial such as cubic value of the credit-to-GDP ratio.

As anticipated, we have found that credit-to-GDP ratio has a positive and significant relationship with GDP growth whereas the squared value of this ratio has produced significantly negative co-efficient that signaled for the non-monotonic relationship with the dependent and explanatory variable. When we added the cubic value of the same ratio, it yielded again the positive coefficient. What we have obtained, economic cycle has a non-monotonic relationship with credit-to-GDP ratio; i.e. financial development. The following table (Table:1) shows the cross-country OLS regression.

Table 1 : OLS Estimation (Different Models)

Dependent Variable: GDP Growth (GDP_GR)	**Model (1)**	**Model (2)**	**Model (3)**
Credit to GDP (C_G)	0.875*** (0.163)	0.943*** (0.168)	1.944*** (0.444)
Lagged value Credit to GDP (L.C_G)		-0.115 (0.072)	-0.030 (0.076)
Credit to GDP Square $(C\_G)^2$	-0.002*** (0.001)	-0.002*** (0.001)	-0.010*** (0.004)
Cubic value of Credit to GDP $(C\_G)^3$			0.00002** (0.00001)
Intercept ($\alpha_{0)}$	84.265 (10.460)	88.534 (12.622)	-58.93 (17.026)
No of Observations	345	322	322
R^2	0.085	0.109	0.113

Cross-country Panel Regression

Our main assumption was that credit to the private sector was a catalyst to output growth but excessive or too much of it might not hold the same relationship. Utilizing the Generalized method of Moments (GMM) model, our panel estimation has yielded that credit-to-GDP ratio affects the GDP growth positively until reaches its optimum level (i.e. the threshold); however, if it is exceeded from the optimum, the ratio affects the growth negatively. As is standard in the literature on financial development and economic growth, our regressions include the following control variables: inflation, government expenditure as a percentage of GDP, and savings as a percentage of GDP.

The equation for panel estimation is as follows:

$$GDP\_GR_{i,t} = \alpha_0 + \beta_0 C\_G_{i,t} + \beta_1 (C\_G_{i,t})^2 + \beta_2 C\_G\_GAP_{i,t} + \beta_3 Savings_{i,t} + \beta_4 INF_{i,t} + \beta_5 GOV\_EX_{i,t} + \beta_7 LEV_{i,t} + \square_{i,t}.$$

Here, the GDP_GR stands for GDP growth, C_G for Private Credit-to-GDP, $(C\_G)^2$ for squared value of Private Credit-to-GDP, Savings for savings as a percentage of GDP, INF

for Inflation rate, GOV_EX for government expenditure as a percentage of GDP and LEV for leverage (i.e. Loan-to-Asset Ratio) of the banking sector. We have used the leverage (LEV) as an instrumental variable for growth regression.

The rationale behind using the GMM model is due to larger cross section (N=23 countries) and shorter time span (T=15 years), GMM estimators are likely to produce

better estimations than fixed effect model because the panel dataset have suffered from cross-sectional dependence and serial correlation. Moreover, due to causal relationship, some of our variables have endogeneity problem; it was very difficult to say which the direction of the causal relationship; i.e. credit -to-GDP affects GDP growth or higher GDP growth stimulate the economy to expand more credit that could be translated to higher economic growth. Keeping into account these obstacles, we have used the GMM model with instrumental variable regression and obtained the better results. The Sargan test of over-identification restriction also confirms the robust estimation.

GMM estimation has been used to run the regressions as Ordinary Least Square (OLS) method could be biased due to cross-sectional interdependence. Lagged value of loan-to-asset ratio has been chosen as an instrument variable. To have a robust estimation, different control variables have been used in the robust GMM regressions such as savings as a percentage of GDP, Inflation, and government expenditure as a percentage GDP. The result of AR1 and AR2 also certifies the robustness of the used models.

The following table (Table: 2) represents the results of a series of panel regressions (GMM Estimation). Our main objective is to explore the effect of the private credit on GDP growth and to find out a threshold above which the ratio does not translate into higher economic growth. To do this, the squared figures of the variable (credit-to-GDP)^2 has been used to estimate the quadratic fit of the model.

Table: 2: GMM Estimation

Dependent Variable: GDP Growth (GDP_GR)	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Credit to GDP (C_G)	1.643*** (0.334)	1.735*** (0.340)	1.403*** (0.304)	1.282*** (0.422)	1.578*** (0.391)	1.429*** (0.340)
Credit to GDP Square $(C\_G)^2$	-0.005*** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)	-0.004** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)
Lagged value of Loan to Asset Ratio (LEV) (as an instrument)	0.258 (0.356)	0.278 (0.355)	-0.204 (0.408)	0.334 (0.420)	0.098 (0.385)	-0.215 (0.371)
Credit to GDP Gap (C_G_GAP)		-17.332** (7.433)				-18.573*** (6.330)

Savings-to-GDP (Savings)			-8.314** (3.105)			5.622** (2.234)
Inflation (INF)					-2.555** (0.947)	-2.934*** (0.896)
Govt. Expenditure-to-GDP (GOV_EX)				-4.085 (3.511)		
Intercept ($\alpha_{0)}$	27.374 (21.761)	26.890 (21.610)	-129.290 64.273	146.012 (102.955)	57.608 (30.662)	42.732 (60.961)
No of Observations	273	273	273	270	272	272
AR1 P Value	-3.05 0.002	-3.05 0.002	-3.12 0.41	-3.01 0.003	-3.09 0.002	-3.14 0.002
AR2 P Value	-0.68 0.495	-0.83 0.406	-0.41 0.685	-0.81 0.417	-0.58 0.563	-0.61 0.541
dGDP_GR/ dC_G	164.33	173.5	175.38	160.25	157.8	178.63

Our estimation supports the hypothesis 'excessive finance' is not good for economic growth. It confirms that the marginal effect of financial development is positive up to certain threshold point but the marginal impact of financial development is significantly negative after that point. Moreover, credit-to-GDP gap or credit gap also affects the GDP growth negatively. It means if an economy's credit gap rises at a higher level than its trend, it would create the boom and collude the economic growth.

Robustness Checks

Semi-parametric Estimation and Quadratic Estimation

To check the robustness of our estimation result, we have used the semi-parametric estimator in our cross-country regression. We took the credit-to-GDP as its normal form, then we have found the relationship between credit-to-GDP and GDP growth was concave and mono tone (credit-to-GDP) had a positive and significant coefficient while the lagged value of the ratio produced a negative coefficient. At higher level of financial development, the ratio yielded significant negative coefficient.

When plotted the estimated result in the graph, we have found a curvature that looked like non-linear. To prove this, we have used the square of the credit-to-GDP ratio in the estimation and found a negative relationship with the GDP growth. We have calculated the first differentiation and found a threshold above which credit-to-GDP ratio had no longer positive relationship with GDP growth.

(Rioja 2004) found an S-shaped relationship between financial development and economic growth that could be better explained by incorporating a cubic polynomial in the regression

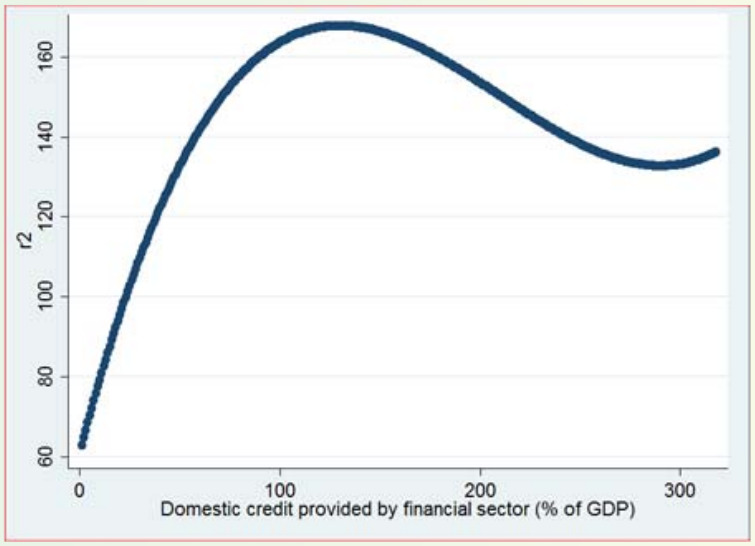
equation. To reveal the true nature of the non-linearity in the relationship between financial development and economic growth, we have estimated a set of semi-parametric estimation that allows financial development taking unrestricted functional form including quadratic and polynomial regressors.

To estimate the relevant semi-parametric equation, we have used 1 year-lagged value of credit-to-GDP ratio along with current year's credit-to-GDP ratio, squared value of credit-to-GDP ratio and cubic value of the same ratio to see whether the relationship between credit-to-GDP ratio and GDP growth is non-monotone and concave. Otherwise, if we had only regressed the equation by using the credit-to-GDP ratio, we might be ended with a spurious regression.

We have found that lagged value of credit-to-GDP ratio has a negative coefficient with economic growth, where the current years' credit-to-GDP ratio has a positive coefficient. Squared value of the credit-to-GDP ratio produces negative coefficient whereas the cubic value yields positive coefficient. It seems logical to conclude that likewise other business cycle theory, GDP growth also has a cyclical pattern and it has a non-linear relationship with credit-to-GDP ratio. The semi-parametric estimation has spotlighted the threshold value of credit-to-GDP around 165 percent of GDP. This threshold is quite similar to the one obtained with the quadratic model.

The following figure illustrates the result of semi-parametric estimation.

Figure 2: Semi parametric growth estimation (graph drawn using STATA)

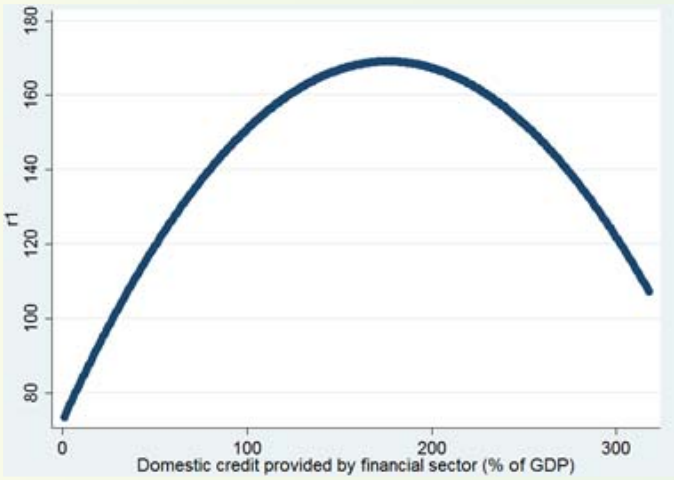


It seems to appear from the above analyses (i.e. both the semi-parametric and quadratic regressions) that there is a non-monotonic, concave relationship between the credit-to-GDP ratio and economic growth. As mentioned above, a quadratic estimation can serve our purpose of estimating the true relationship between them.

Inverted U-shape Relationship between Financial Development and Economic Growth

An inverted U-shape could be existent due to compositional effects, for example, bank-based financial systems and the market based financial systems; both could contribute to form the parabola. We have used the credit to the private sector, as a percentage of GDP, assuming that it could capture the compositional effect of financial development. Following Graph plots the relationship of credit to GDP (explanatory variable) on economic growth and the quadratic fit of the explanatory variable.

Figure 3: Relationship between the Credit-to-GDP ratio and Economic Growth.



If we look at the parabola (Figure:3), we can infer the threshold value of the credit-to-GDP ratio, above which the ratio no longer has a positive effect on economic growth. After estimation, we have made the first differentiation to obtain the threshold value that is, a threshold value of 164 percent of GDP. Many countries are close to beyond this level, suggesting that more financial deepening will not achieve higher economic growth. For example, during the financial crisis, some countries exceeded the threshold limit; for example, in South Africa, private credit of banks crossed 200 percent of GDP at the onset of crisis whereas in Thailand the ratio reached 169 percent during that time. By contrast, in two countries like India and Bangladesh, where financial development are less than 70 percent, can still yield significant benefits from further financial development. Overall, all the countries have been selected from emerging economies and therefore have been attributed to higher economic growth linked with relatively higher ratio of financial development but still it has a limit that has been discussed above.

To confirm our finding of an inverted U shaped relationship, we have conducted the U test of (Lind J.T. 2010). The rationale behind this test is that conventional econometric model is not suitable for testing the composite null hypothesis that at the left side of the interval the relationship is decreasing, and at right side of the interval the relationship is increasing, or

vice-versa. Moreover, if the model does not allow non-monotonocity, it may lead to a downward bias in the estimating effect of financial development on economic growth.

The following table (table: 3) shows the results of Sasabuchi-Lind-Mehlum test for inverse U-shaped relationship. The table represents the results based on the variables of GMM estimations as mentioned in table: 1.

Table 3: Tests for an inverted U-shape relationship

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Slope at PC min	0.0091***	0.0080***	0.01040***	0.0072***	0.0085***	0.0101***
Slope at PC max	-0.0069***	-0.0062***	0.0068***	-0.0049***	-0.0065***	-0.0067***
P-value	0.0002	0.0002	0.0001	0.0044	0.0001	0.0002
Fieller 90 percent confidence level	[161.61; 211.08]	[161.86; 211.53]	[173.92; 222.73]	[167.20; 248.17]	[162.83; 207.65]	[174.97; 218.23]
***p≤0.01, ** p≤0.05, *p≤0.1						

Macroprudential Perspectives of Excessive Financing

We have also shown the effect of credit-to-GDP gap on economic growth. The gap typically means the deviation of credit-to-GDP gap from its long term trend using the Hodrick Prescott Filter (HP filter). In this stage, we have used the financial cycle as a control variable that strategically takes as the dummy variable indicating the 'Credit-to-GDP gap. The gap captures actually not the business cycle but the financial cycle that signals the boom and bust cycles of the economy. Thus our motivation to include this variable in the regression model has been driven from the perspective of systemic risk and procyclicality of the economy. Borio and Lowe first recognized its property as a very useful early warning indicator (EWI) for banking crises (Borio 2002).

When the credit-to-GDP Gap persistently rises above 2 percent for several years, it signals about the initiation of the boom cycle, so, we have used 1 for it; otherwise (for the gap<2), we have used the dummy as 0. We have found that credit-to-GDP gap moves countercyclically with the GDP growth. Robust estimations using model no. 2 and 6 in the table: 1illustrates the significant and negative relationship between the variables.

Statistically, the correlation between the credit-to-GDP gap and real GDP growth is negative across a panel of 23 countries over the period of 2000 to 2014 but small in size. The dummy (1) predicts about the periods of excessive credit growth that are not persistent with GDP growth. The credit-to-GDP gap is an indicator for building up excessive leverage and systemic risk in the banking system, thus indicating the activation

time of the macroprudential tools such as the countercyclical capital buffer for limiting the procyclicality. Many jurisdictions, for instance, the Bank of England, Swiss National Bank, the Central Bank of Norway and Reserve Bank of India etc. are monitoring a small number of indicators in addition to the credit-to-GDP gap in evaluating aggregate vulnerabilities and making decision about the activation of the countercyclical capital buffer.

Policy Recommendations

In this paper, an effort has been made to find out a threshold of financing or financial development among 23 emerging countries above which the value could be treated as 'too much' since too much financing would not yield better outcome anymore. But due to heterogeneity of the countries, the threshold might not hold perfect for each particular country. As we have seen excessive finance is not always good for any particular economy since the marginal benefit could decline after crossing the threshold. Although each country may have differentiated level of threshold, some commonalities exist among them. For example, the credit-to-GDP gap exceeding 2 percent would perhaps create systemic risk and vulnerabilities regardless of the country. Our estimation results supports the macroprudential policies based on the threshold of the credit-to-GDP ratio and credit-to-GDP gap in each particular economy in consideration with other macroeconomic variables.

Although regional and global collective initiatives do have their roles in addressing stability concerns, but the primary obligation for maintaining macroeconomic and financial stability should begin and remain at the country level. For maintaining a balanced and stable macroeconomic environment, the relevant authorities should implement the justified macroprudential policies such as the countercyclical capital buffer when the economy starts to experience booming. However, empirics did not find any link between higher capital requirement and economic growth but from the perspective of risk management, higher capital requirement would shield the financial intermediaries from the potential risks arisen due to possible future downturn of the economy.

Policymakers should have to use a great deal of discretion in implementing the macroprudential policy. The short-run dynamic impact of a temporary change in capital requirements should be studied extensively. The most critical concern is that policy lags could create unintended consequences as well as worsen the downturn if a temporary increase in the capital buffer occurs at a wrong time such as the moment when the bubble is bursting.

It seems logical to conclude that the relationship between the financial development and economic growth could depend upon the manner through which finance is provided. If the finance is provided in productive assets, it would certainly less riskier than investing in speculative business or consumer goods. Therefore, a good mix of macroprudential tools could be applied to reduce the risk of financial intermediaries and the economy as a whole.

Conclusion

In this paper, we have re-examined not only the relationship between financial development and economic growth but also pointed out the situation when the financing appears as 'excessive'. At the end, we have come to two basic conclusions. First, the relationship between financial development and economic growth is non-monotonic and they exhibit an inverted-U shape relationship. We have estimated the threshold level of financial development as 165 percent of GDP above which further enlargement of the financial system could yield declining real economic growth. Second, the successive deviations of the credit-to-GDP ratio from its long term trend (i.e.credit-to-GDP gap) have a negative impact on the real economic growth. Moreover, the credit-to-GDP gap seems to produce a useful decision-making input for macroprudential policymakers. Likewise, Basel Committee on Banking Supervision (Basel Committee on Banking Supervision 2010) has brought into light the credit-to-GDP gap as an Early Warning Indicator (EWI) for systemic banking crises, we have re-examined the suitability of this indicator in the cross-country growth regression and found a conclusive negative relationship with the real economic growth.

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Table 4: Data Description and Sources

Variable	Variable's short name	Description	Sources
GDP Growth	G_GR	Annual percentage growth rate of GDP at market prices based on constant local currency.	World Bank Data
Credit to GDP	C_G	Claims on private sector by deposit money banks and other financial institutions divided by GDP. It includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net.	World Bank Data
Loan to Asset Ratio	LEV	Bank loan is a type of debt. Like all debt instruments, a loan entails the redistribution of financial assets over time between the lender and the borrower.	HelgiLibrary Data
Savings-to-GDP	Savings	Expressed as a ratio of gross national savings in current local currency and GDP in current local currency.	IMF Data
Inflation	INF	Annual percentages of end of period consumer prices are year-on-year changes.	IMF Data
Govt. Expenditure-to-GDP	GOV_EX	Total expenditure consists of total expense and the net acquisition of nonfinancial assets.	IMF Data

Table: 5: Summary Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
GDP Growth	Overall	5.112	3.881	-14.8	33.74	N = 322
	Between		1.764	2.33	9.856	n = 23
	Within		*3.476*	-13.879	30.874	T = 14
Credit to GDP	Overall	68.047	44.548	4.91	201.58	N = 321
	Between		43.226	18.724	181.324	n = 23
	Within		13.709	23.040	115.130	T = 14
Savings-to-GDP)	Overall	24.407	8.142	10.01	53.03	N = 345
	Between		7.541	14.981	46.941	n = 23
	Within		3.427	8.276	35.600	T = 15
Inflation	Overall	7.796	7.674	-1.77	62.17	N = 342
	Between		5.353	2.252	25.862	n = 23
	Within		5.585	-5.536	44.711	T = 15
Govt. Expenditure-to-GDP	Overall	25.936	7.833	11.408	49.15	N = 339
	Between		7.415	12.806	42.789	n = 23
	Within		2.990	18.474	44.574	T = 15
Loan to Asset Ratio	Overall	51.269	19.254	4.7	122.4	N = 374
	Between		18.355	5.645	98.131	n = 23
	Within		6.8510	44.323	73.934	T = 15

Table: 6: List of Countries

Serial No.	Name of the Country	Serial No.	Name of the Country
1	Argentina	13	Nigeria
2	Bangladesh	14	Pakistan
3	Brazil	15	Peru
4	Chile	16	Philippines
5	China	17	South Africa
6	Colombia	18	Sri Lanka
7	Egypt, Arab Rep.	19	Thailand
8	India	20	Turkey
9	Indonesia	21	Venezuela, RB
10	Kazakhstan	22	Vietnam
11	Malaysia	23	Ukraine
12	Mexico		