

Financial Development, Financial Liberalisation and Institutions Nexus in Selected Sample of Middle Income Countries

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The aim of current research is to examine the nexus between financial development, institutions and financial liberalisation in Middle Income Countries (MICs) over the period 1995–2015. Financial development is a very vast concept and it is difficult to measure by utilising single indicator. For this purpose, six indicators of financial development comprising three indicators of banking sector development (private sector credit, domestic credit and liquid liabilities) and three indicators of stock market development (value traded, turnover ratio and stock market capitalisation) are used. Westerlund cointegration results indicate that long-run relationship exist between financial development, financial liberalisation, institutional quality and auxiliary variables. Augmented Mean Group results reveal that level of financial development in MICs is determined by its financial liberalisation policies, institutional quality measures as well as the level of economic growth and trade openness strategies. Furthermore, our empirical findings demonstrate bidirectional causality between financial development and financial liberalisation in MICs.

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1. INTRODUCTION

The role of financial system is essential for the proper functioning of an economy. Economic theory postulates that a well-organised and systematic economy requires a well-developed financial system due to increased capital flows in the world. According to Goldsmith (1969) financial development is defined as the structural change in the financial system of a country which occurs during the process of development. Banks and stock markets are two main components of financial system. The efficiency and effectiveness of the financial system of a country are necessary to obtain the sustainable level of economic growth and the level of opportunities for capital accumulation, investment and saving. Thus, literature puts a great stress that a country must have a well-organised and well-functioning financial system [McKinnon (1973); Levine (1997); Ang

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and McKibbin (2007)]. The finance-growth relationship was first explored by Schumpeter (1911) by analysing the importance of finance in economic activities. Since the inception of Schumpeter's (1911) view on the finance-growth nexus, a few other views have emerged in both the theoretical and empirical literature. For example, Robinson (1952) noted that "when enterprise leads, finance follows" which implies that finance follows growth. In other words, economic growth provides incentives for the sound functioning of financial intermediaries. Lucas (1988) believed that this relationship is unimportant. These views have subsequently been examined, and the empirical manifestations generally supported the theoretical proposition of "more finance, more growth" [see, e.g. Rajan and Zingales (1998); Levine, *et al.* (2000); Levine (2003); Beck and Levine (2004)].

The role of financial liberalisation in promoting financial development has recently received some attention in empirical research, but this role is still not well researched in the literature. Mishkin (2009), for example, in his seminal paper emphasised the role of liberalisation in promoting financial development through institutional quality, under the argument that financial liberalisation amplifies access to capital by enabling foreign capital to flow in, and thereby lowering the borrowing costs of uplifting investment. Mishkin (2009) further argued that opening markets to foreign goods can also improve institutions, which thus leads to more financial sector development and economic growth. Tovar Garcia (2012) agreed with Mishkin's (2009) view and argued that financial liberalisation encourage financial development which in turn accelerate pace of economic growth. Mishkin (2009) stated that financial development, financial liberalisation and institutions are mutually exclusive; this exclusiveness causes financial openness to boost economic growth. Moreover, opening up of domestic banks to foreign financial markets causes improvement in financial institutions, which also improves the quality and performance of social institutions. The increased efficiency and quality of institutions causes the domestic financial capital's cost to match the foreign competitive cost of investment, resulting in maintaining a single price, and enabling the firms and individuals to acquire capital for individual consumption and business investment from domestic banks and stock markets. This increase in consumption and investment helps in creating employment opportunities that further increases the demand of goods and services which leads to economic growth.

Limited empirical work has been done on the nexus between financial development, financial liberalisation and institutions in MICs. The present work is an attempt to fill this gap by examining the interaction between financial development, financial liberalisation and institutions in MICs for the period of 1995-2015. This study contributes to the existing literature in four ways. (i) It bifurcates the standard indicators of financial development into banking sector development and stock market development indicators. (ii) It uses PCA to generate an index of financial sector development (as well as bank-based and stock market-based indices) to provide a robust empirical analysis of the relationships under consideration. (iii) It utilises DOLS to examine both the short-run and long-run relationships between financial liberalisation, institutional quality and financial development. (iv) Further, it investigates the causality between the variables by applying the Dumitrescu and Hurlin (2012) causality test.

The rest of the study is organised as follows: Section 2 reviews related empirical literature. Data sources and variables description are covered in Section 3. Empirical methodology is presented in Section 4. Empirical findings and their interpretation are discussed in Section 5. Section 6 presents concluding remarks and policy recommendations of the study.

2. REVIEW OF LITERATURE

In this section, brief empirical review is presented on the nexus between finance and growth, finance and institutions, finance, institutions and financial liberalisation.

2.1. Financial Development and Economic Growth

Empirical literature provides mixed and conflicting results on the finance-growth relationship. For instance, King and Levine (1993) investigated the role played by financial sector in determining economic growth in 77 countries. They concluded that financial development help to stimulate economic growth. Beck, *et al.* (2000) empirical findings based on cross-country analysis confirmed that improved functioning of financial intermediaries' results in better allocation of resources and increase in factor productivity which in turn promote economic growth in selected 77 countries. Levine, *et al.* (2000) investigated the factors of financial intermediation that affect economic growth. The study results demonstrated that exogenous factors of financial intermediation cause economic growth. Claessens and Laeven (2003) found the same results by using the data of 19 developed and 25 developing countries. Beck and Levin (2004) investigated the effect of banking and stock market on GDP per capita using the data of 40 countries. Empirical findings indicated the positive and significant relationship between equity market, banking sector and real GDP. Fung (2009) concluded that financial development positively impact GDP growth and it is more evident in the early stage of growth. He conducted his study using different number of industrial and developing countries from different regions of the world. In contrast to these studies, Samargandi, *et al.* (2015) explored the nexus between financial sector development and GDP growth in 52 middle income countries. Empirical analyses showed that financial development is inversely related to output growth over a long period of time while for short term period, the study showed insignificant results. Using the panel data of 109 emerging and developed countries, Caldero'n and Liu (2003) explored the causal link between financial depth and GDP growth. Empirical findings documented the bidirectional-causal link between financial depth and GDP growth in selected countries. Christopoulos and Tsionas (2004) found that in short run there does not exist any causal connection between financial sector development and GDP growth whereas in long run unidirectional causal relationship existed in 10 selected developing countries. Kenourgios and Samitas (2007) found that financial development through physical capital and credit promoted economic growth in Poland. Hassan, *et al.* (2011) empirical finding reported that financial development is necessary for economic growth and without economic growth development of financial sector is not possible for developed countries but for the poorest countries, financial development enhances economic growth. Carby, *et al.* (2012) explored the causal link between financial depth and growth for Barbados. He found that

economic growth Granger cause financial development in the short run while bidirectional causal connection between economic growth and financial development exist in the long run.

2.2. Financial Development and Institutions

Numerous studies have focused their attention to determining the relation of institutions for fostering financial development. For example, Levine (1999) found that the strength of legal system and regulatory environment helps in boosting financial sector development. Levine, *et al.* (2000) found that strong legal and accounting institutions helps to improve financial enlargement and enhances GDP growth. Bordo and Rousseau (2006) found strong institutions are essential components for financial development which promotes growth. The lack of sound legal and political system may affect the sustainability of financial system and economic growth and these countries may not be able to tackle the disasters of financial crises. Girma and Shortland (2008) documented that in those countries where politics are in the hands of few elite, performance of financial market remain slow because of lack of potential competitors. They suggested that only politically stable and democratic economy encourages development in financial markets. Ghardallou and Boudriga (2006) conducted their study in 112 emerged and emerging countries. Institutions showed positive and significant results explaining development in financial sector. The results also showed weakness in political and economic institutions lessen the impact of democracy on financial development. Nee and Opper (2009) revealed that bureaucratic performance is crucial for the development of financial market while political instability harms financial development. Gries and Meierrieks (2010) noted that weak institutions are the main cause of underdeveloped financial system in Sub Saharan Africa. They found that political stability and sound property rights are most fundament components for financial development while democratic accountability and corruption have feeble influence on financial development. Yang (2011) found positive relationship between democracy and private credit in cross sectional analysis but in panel regression analysis this relationship vanished, while stock market development showed negative relationship with democracy. Asongu (2014) examined the impact of political regimes on the financial development of Africa. The empirical results indicated that income levels, dominant religion and colonial legacies positively and significantly affect all the indicators of financial development. Naceur, *et al.* (2014) observed the factors that compel the financial development in MENA countries. The empirical results suggested that institutional quality promotes financial development, Openness promotes financial activity in support of more trade integration and financial liberalisation increase inflows that contribute to further financial development.

2.3. Financial Development, Financial Liberalisation and Institutions

Klein and Olivei (1999) empirically investigated the impact of capital account liberalisation on financial depth for 93 countries. Results showed that countries which restricted their capital accounts lacked financial depth while those countries that liberalised their capital accounts benefited and showed increased financial depth. The general results of the study concluded that capital account liberalisation is not beneficial to all economies. Chinn and Ito (2006) reported the impact of financial

liberalisation on financial development in 108 countries exclusively including 15 less developed Asian countries. They found that financial openness promoted trade openness leading to the development of equity market particularly when an economy has a reasonably strong legal system. Ang and Mckibbin (2007) empirically examined the relationship between financial liberalisation and financial development using the time series data of Malaysia. Empirical findings suggested that real interest rate and financial repression have negative impact on financial development, by removing the repressive policies financial liberalisation promotes country's financial sector. Samouel (2007) argued that financial openness caused financial development in the presence of proper institutional setup. He concluded that for financial development it is necessary to prepare a strong legal and institutional framework before opening the gates for financial globalisation. Tressel and Detragiache (2008) examined whether financial reforms worked for financial development in presences of capital account liberalisation and institutions in 91 countries. They found that financial reforms proved to be beneficial for financial development when institutions were strong. Baltagi, *et al.* (2009) noted that banking development mainly depends upon financial liberalisation and trade openness in 42 industrial and emerging economics. Abdelaziz, *et al.* (2011) analysed the impact of financial liberalisation on bank profitability using data of 9 Tunisian banks. Results showed that liberalisation negatively affects profitability of banks. Falahaty and Law (2012) highlighted the impact of globalisation on financial development for nine MENA countries. Results from the tests suggested that positive and significant long run relationship between globalisation and financial development while they does not find evidence of relationship between institutions and financial development. Kandil, *et al.* (2015) analysed the link between financial depth and globalisation in 32 emerged and emerging countries. Results suggested that economic growth helps financial development but globalisation hinders the latter. Institutions do not influence financial development in the sample countries.

3. VARIABLES SELECTION AND DATA SOURCES

3.1. Measures of Financial Development

The selection of financial development indicators that represent the extent and efficiency of financial intermediaries is a difficult task. However, review of literature sheds light on the importance of different financial development indicators and guides us in selecting these indicators. 'Ratio of liquid liabilities to GDP' (LLY) is a widely used measure of financial deepening in traditional literature. King and Levine (1993), Rousseau and Sylla (2003), Caldero'n and Liu (2003), Hassan, *et al.* (2011) used this indicator as a proxy for measuring financial depth. Other standard measure is 'ratio of domestic credit provided by financial sector to GDP' (DOC). This measure has been used by Hassan, *et al.* (2011), Sehgal, *et al.* (2014), Kandil, *et al.* (2015) in their studies. Another commonly used measure is 'ratio of private credit provided by the banking sector to GDP' (PRC) and used by Claessens and Laeven (2003), Fung (2009), Demirhan, *et al.* (2011), Kandil, *et al.* (2015). This measure is considered to be the most important banking sector indicator because private sector is more capable to utilise funds in productive investment projects as compared to public sector. On the other hand, Beck

and Levin (2004) used three different measures of stock market capitalisation. The first indicator is the 'value of listed companies on the stock market as share of GDP in a given year' (MCLC). The second one is 'total value traded as share of GDP' (TVT), which represent total value of domestic and foreign shares traded during the given period. The last indicator is 'turnover ratio as share of GDP' (TRR), which is the ratio of trades in domestic shares to market capitalisation. The data of all these indicators are collected from World Development Indicators by World Bank (online) database over the period 1995 to 2015 for 37 middle income countries.¹

The selected indicators of financial development are highly correlated and empirical literature does not provide uniform argument about the importance of financial development indicators. This justifies the need to combine all selected indicators into a single measure that represent the overall development of financial sector. However, following the studies of Huang and Temple (2005), Ang and Mckibbin (2007) and Hanh (2010), we aggregate the above mentioned indicators into three new measures of financial development by using principal component analysis (PCA). The first one measure capture the overall level of financial development and is denoted as FDEV. This measure is based on complete set of six indicators, namely, LLY, DOC, PRC, MCLC, TVT and TRR. The second one, FDBK, is designed to captures the extent of bank based intermediations and is based on LLY, DOC and PRC. The third one, FDSM, based on MCLC, TVT and TRR and captures the equity market development.

3.2. Measures of Financial Liberalisation

Financial liberalisation (FL) measures with the name of 'de facto' and 'de jure' are mainly discussed in empirical literature. The de facto is a measure of financial globalisation and is constructed by Lane and Milesi-Ferretti (2006). This measure is defined as the volume of foreign assets and liabilities of a country share of GDP. The de-jure measure is the Chinn and Ito (2006) index of capital account openness (KAOPEN). This measure is based on binary variables that explains restrictions on cross-border transactions. De facto is a broader measure of financial liberalisation because it provide a summary of country's history of financial openness. The data of de jure measure of financial liberalisation is taken from Chinn and Ito online dataset (latest version) while dataset of de facto measure of financial liberalisation is collected from Lane and Milesi-Ferretti online dataset (latest version).

3.3. Institutions

Following Knack and Keefer (1995), Baltagi (2009) four indicators are used to construct institutional quality index (IQ), namely, corruption, rule of law, democratic accountability, and bureaucratic quality. The first three indicators range from 0 to 6 while last indicator range from 0 to 4, higher value indicate better institutional quality. The scale of these indicators is first converted '0 to 10'. Then we combine them into a single measure by summing them up. So, the theoretical range of this index is 0 to 40. The data of institutional quality indicators is taken from International Country Risk Guide, a publication of Political Risk Services (PRS).

¹37 countries are selected on the basis of data availability.

3.4. Control Variables

Following control variables are also used in empirical estimation:

Log of GDP per capita at constant 2010 \$US (LGD) is used as control variable. Rajan and Zingales (2003), Ang and Mckibbin (2007), Baltagi (2009) and others have utilised this variable to represent the demand for finance.

Trade Openness (TO) measured by exports plus imports divided by GDP. This variable describe the extent of economic integration among countries and used by Chinn and Ito (2006), Ang and Mckibbin (2007) and Baltagi (2009). Data source of control variables is World Development Indicators by World Bank (online) database.

List of selected middle income countries and summary statistics of all selected variables is displayed in Appendix Table 1A and Table 1B respectively.

4. EMPIRICAL METHODOLOGY AND MODEL SPECIFICATION

To investigate the nexus between financial development, financial liberalisation and institutions, econometric model is specified as follows:

$$FDEV_{it} = \gamma_0 + \gamma_1 FL_{it} + \gamma_2 IQ_{it} + \gamma_3 LGD_{it} + \gamma_4 TO_{it} + \mu_{it} \quad \dots \quad \dots \quad \dots \quad (1)$$

Where $FDEV_{it}$ represent financial sector development, FL_{it} refers to financial liberalisation measured by de facto and de jure measures, IQ_{it} measures the institutional quality, LGD_{it} is log of GDP per capita, TO represent trade openness, μ_{it} is independently and identically distributed error term, subscript i represent cross-sectional unit and t denote time period.

4.1. Cross-sectional Dependence and Unit Root Tests

Panel data is likely to be furnished with substantial cross-sectional dependence in the error terms, which may be caused by occurrence of unobserved factors and common shocks that influence the error terms. One reason of this phenomena is that over the last few decades the economic and financial integration has constantly increased among all the countries and thus caused a powerful interdependence between cross sectional units. To solve with this problem, we have used Pesaran's CD test.

Pesaran (2007) noted that the traditional panel unit root tests was unable to give reliable results when there exist the problem of cross-sectional dependence in the data. Therefore, Pesaran (2007) proposed Pesaran CADF test in which the estimates of a heterogeneous panel are assumed to be cross-sectional dependent. This test is parallel to IPS unit root test, proposed by Im, Pesaran, and Shin (2003) which is based on the mean of individual DF/ ADF t-statistics of each unit involved in the panel.

4.2. Panel Cointegration

When all the series in the panel are integrated at the same order, the next step is to apply cointegration test in order to check whether long run relationship exists between the variables or not. For this purpose, Westerlund (2007) panel cointegration technique is

applied. Westerlund (2007) develops four panel tests of the null hypothesis of no cointegration which allow for cross-sectional dependence. These tests are based on structural rather on residual dynamics. The panel tests denoted by Gt and Ga are performed under the alternative of panel cointegration. Two other tests, Pt and Pa, are designed under alternative of least one element of the panel is cointegrated. The null hypothesis of no cointegration which infers whether the error-correction term in a conditional error-correction model is equal to zero is tested. If the series are cointegrated, then causality should run in at least one direction [Engle and Granger (1987)].

4.3. Estimation of Panel Cointegration Regression

After the estimation of cointegration, the next step is to estimate the long-run elasticities. If we assume the selected panel is homogenous, then the above model Equation (1) can be estimated by applying standard panel regression techniques like pooled OLS, fixed effect, random effect or generalised methods of moment [Samargandi, *et al.* (2013)]. However, the assumption that the quality of institutions and the process of financial liberalisation is homogenous across all thirty seven countries is unrealistic. Moreover, the selected panel comprises countries from different economic, cultural and social background. As a consequences, the selected model with heterogeneous slope coefficient can be estimated by employing augmented mean group (AMG) estimators [see Eberhardt and Bond (2009); Eberhardt and Teal (2010, 2011)]. Apart from heterogeneous slope coefficients across countries, these estimators also account for cross-sectional dependence.

4.4. Panel Causality Test

To check causality between variables, we applied Dumitrescu and Hurlin (2012) causality test for panel data. It is a simplified form of a non-causality test presented by Granger (1969). It is for heterogeneous data and fixed coefficient models. The following model is used for causality testing.

$$z_{it} = \alpha_i + \sum_{m=1}^M \gamma_i^{(m)} z_{i,t-m} + \sum_{m=1}^M \pi_i^{(m)} y_{i,t-k} + \varepsilon_{it} \quad \dots \quad \dots \quad (2)$$

Here $i=1,2,3,4,\dots$ and $t=1,2,3,4,5,\dots,T$

Lag order of M are homogenous for each cross-section units of the panel. We also allow the autoregressive parameter $\gamma_i^{(m)}$ and the regression coefficients $\pi_i^{(m)}$ to vary across cross-sections of the panel. Under the null hypothesis, we assume that there is no causality relationship for any of the cross-sectional unit of the panel. This assumption is called the Homogenous Non-Causality (HNC) hypothesis. The alternative hypothesis is called Heterogeneous Non-Causality hypothesis.

5. RESULTS AND DISCUSSION

We have applied Pesaran (2004) cross-section dependence test (CSD)-based on pair wise correlation coefficients, to check cross-sectional correlation in the dataset because we think that there may be some interdependencies between middle income

countries due to certain common shocks (e.g., 2008 global financial crisis). The results presented in Table 1 strongly reject the null hypothesis of cross-sectional dependence at 1 percent significance level for all variables which reveals a potentially common dynamics to the countries.

Table 1

Pesaran Cross-Section Dependence Test

Variables	$FDEV_{it}$	$FDBK_{it}$	$FDSM_{it}$	FL_{it} (de-facto)	FL_{it} (de-jure)	IQ_{it}	LGD_{it}	TO_{it}
CSD	21.95	16.63	16.37	10.60	3.368	23.68	82.65	6.270
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Pesaran CADF unit root test is employed to check stationarity of variables. Pesaran CADF test assumes that auto-regressive coefficients are heterogeneous with cross-section dependence. Table 2 shows the results obtained by applying Pesaran CADF test, at level and at first difference with constant as well as with constant and trend. The results showed that all the variables have a unit root at level and become stationary at 1st difference in the case of selected middle income countries. Thus, we conclude that all selected variables ($FDBK_{it}$, $FDBK_{it}$, $FDSM_{it}$, FL_{it} (de-facto), FL_{it} (de-jure), IQ_{it} , LGD_{it} and TO_{it}) have integrated of order one, I(1).

Table 2

Results of Pesaran CADF Unit Root Test

Variables	At Level				At First Difference			
	ϑ_c	P-value	$\vartheta_{c,t}$	P-value	ϑ_c	P-value	$\vartheta_{c,t}$	P-value
$FDBK_{it}$	-1.737	0.507	-1.907	0.981	-3.765	0.000	-3.908	0.000
$FDBK_{it}$	-1.666	0.655	-2.214	0.661	-3.783	0.000	-3.846	0.000
$FDSM_{it}$	-1.907	0.184	-2.332	0.409	-2.751	0.000	-3.101	0.000
FL_{it} (de-facto)	-1.007	1.000	-1.380	1.000	-2.731	0.000	-3.045	0.000
FL_{it} (de-jure)	1.507	0.934	3.936	1.000	-10.02	0.000	-8.826	0.000
IQ_{it}	2.610	1.000	1.700	1.000	-2.891	0.000	-3.331	0.000
LGD_{it}	2.610	1.000	-2.186	0.714	-2.979	0.000	-3.335	0.000
TO_{it}	-0.993	1.000	-2.177	0.730	-3.888	0.000	-3.964	0.000

Note: ϑ_c represent constant $\vartheta_{c,t}$ represent constant and trend.

Results of Westerlund cointegration test are displayed in Table 3. Results of Model 1 indicate that there are evidence of cointegration between selected variables in middle income countries over the period 1995–2015. Similarly in model 2, 3, 4, 5 and 6, there are clear evidence of cointegration between selected variables in sample countries.

Table 3

<i>Westerlund Panel Cointegration Test Statistics</i>								
Statistics	Value	Z-test	P-value	Robust P-value	Value	Z-test	P-value	Robust P-value
	(Model-1: $FDEV_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-facto measure				(Model-2: $FDBK_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-facto measure			
Gt	-2.338	-2.713	0.020	0.071	-3.200	-3.476	0.000	0.003
Ga	-11.92	1.465	0.931	0.811	-12.42	-0.264	0.391	0.172
Pt	-12.57	-1.890	0.073	0.156	-13.04	-4.127	0.000	0.035
Pa	-10.74	-2.041	0.042	0.092	-12.32	-2.461	0.006	0.087
Statistics	Value	Z	P-value	Robust P-value	Value	Z	P-value	Robust P-value
	(Model-3: $FDSM_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-facto measure				(Model-4: $FDEV_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-jure measure			
Gt	-3.175	-3.214	0.000	0.010	-1.675	-1.323	0.786	0.650
Ga	-12.76	-0.485	0.531	0.691	-9.694	-0.467	0.392	0.299
Pt	-12.99	-4.790	0.006	0.056	-11.16	-3.132	0.015	0.056
Pa	-13.36	-3.041	0.004	0.071	-12.89	-3.580	0.007	0.012
Statistics	Value	Z	P-value	Robust P-value	Value	Z	P-value	Robust P-value
	(Model-5: $FDBK_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-jure measure				(Model-6: $FDSM_{it}, FL_{it}, IQ_{it}, LGD_{it}, TO_{it}$) $FL_{it} =$ De-jure measure			
Gt	-2.875	-1.621	0.060	0.069	-1.980	-1.506	0.786	0.896
Ga	-9.704	-0.482	0.392	0.299	-10.61	-0.613	0.392	0.439
Pt	-11.78	-3.479	0.015	0.056	-11.98	-3.760	0.010	0.019
Pa	-12.09	-3.472	0.007	0.012	-13.42	-4.543	0.000	0.008

Note: Intercept and trend is included in cointegrating equation. To control for cross-sectional dependence, robust critical values is obtained through 5000 bootstrap replications.

After the application of cointegration, AMG estimator is applied to estimate the long run and short-run coefficients and the results are reported in Tables 4 and 5. In Table 4, the results reveal that when financial development is taken as dependent variable, institutional quality and financial liberalisation (de facto) are positively correlated with financial development in all income panels. These results are consistent with the findings of Baltagi, *et al.* (2009), Hassan, *et al.* (2010), Naceur, *et al.* (2014), Asongu (2014). The estimated results point out the importance of removing constraints on external financing in order to strengthen the financial system of middle income countries. Likewise, developed institutional structure helps to attract financial inflows and decrease the scope of risk involved in investment. The foreign investors are also attracted to invest in safer environment thus financial development increases. Finally, we find that financial development also depends upon control variables, that is, economic growth and trade openness. The positive coefficient of economic growth indicates that economic growth allows financial development that is, growth lead finance which is in support of some studies like Demetriades and Hussein (1996), Ang and McKibbin (2007) and Baltagi, *et al.*

(2009). The positive sign of trade openness reveals that opening up of domestic market to the rest of the world, a nation can promote real economic activity through bilateral trade, transfer of goods and services, mobilisation of human and physical capital and flows of ideas and as a consequences financial sectors develops [Hanh (2010)].

In column II, when banking sector development is taken as dependent variable, the results show positive and significant impact of financial liberalisation (de facto) on banking sector in the long run. This result is in line with the studies of Chinn and Ito (2006), Ang and Mckibbin (2007). Financial liberalisation increases funds and lowers risk thus increases investment and improves banking sector. The coefficient of institutions has positive sign which means that increase in institutional quality causes an increase in banking sector development in MICs. This result is in line with the studies of Girma and Shortland (2008), Law and Azman-Saini (2012). The coefficients of economic growth and trade openness are significant and positive which shows that increase in GDP per capita and trade openness results in development in banking sector. These results are consistent with the findings of Beck and Levin (2004), Girma and Shortland (2008) and Demirhan, *et al.* (2011). Similarly in Column III, all the explanatory variables are statistically significant having expected signs. This implies that financial liberalisation, institutions, economic growth and trade openness improve the stock market development in long-run, which corroborates the findings of Beck and Levin (2004), Demirhan, *et al.* (2011), Abdelaziz, *et al.* (2011). Overall, the results of our study support the Rajan and Zingales hypothesis, which postulates that both types of liberalisation (financial liberalisation and trade liberalisation) are necessary for financial development.

Table 4
Results of Long-run Estimates
(FL_{it} = De-facto Measure)

Variables	All Middle Income Countries					
	I		II		III	
	Dependent Variable= $FDEB_{it}$		Dependent Variable= $FDBK_{it}$		Dependent Variable= $FDSM_{it}$	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
FL_{it}	3.282	0.000	3.021	0.000	2.471	0.001
IQ_{it}	1.413	0.060	1.154	0.000	2.758	0.035
LGD_{it}	3.521	0.001	5.443	0.050	5.687	0.089
TO_{it}	3.086	0.007	4.024	0.003	-1.282	0.418
Upper Middle Income Countries						
FL_{it}	2.542	0.004	1.987	0.000	2.550	0.045
IQ_{it}	2.899	0.078	3.238	0.005	2.039	0.008
LGD_{it}	3.445	0.054	3.032	0.087	2.764	0.056
TO_{it}	3.551	0.065	2.375	0.513	2.098	0.076
Lower Middle Income Countries						
FL_{it}	1.542	0.052	1.783	0.041	1.461	0.078
IQ_{it}	1.083	0.067	1.361	0.080	1.395	0.054
LGD_{it}	1.035	0.005	0.876	0.010	1.765	0.021
TO_{it}	-0.873	0.342	-0.632	0.765	-0.643	0.982

Table 5 presents the results of AMG estimates using de-jure measure of financial liberalisation. The impact of financial liberalisation and institutional quality variables on financial development, banking sector development and stock market development are found to be positive and significant in middle income panel as well as in upper middle income panel and lower income panel. The results suggest that lowering capital account restrictions helped to attract foreign investment and thus improving financial sector of middle income countries. Naceur, *et al.* (2014), Baltagi, *et al.* (2009), Ito (2006), Klein and Olivei (1999) also found similar results. Similarly, countries with sound and efficient institutional setup can take advantage from opening up their capital accounts to deepen their financial system [Girma and Shortland (2008); Law and Azman-Saini (2012)]. These findings support the results reported in Table 4, however magnitude of coefficient is large when de-facto measure of financial liberalisation is used. In other words, our results support the Baltagi, *et al.* (2009) conclusion that de-facto is a better measure of financial liberalisation. The effect of economic growth on financial development is found to be positive in all Columns. The coefficient of trade openness is positive in Column I and II while it is found to be negative and insignificant in column III.

Table 5
Results of Long-run Estimates
(FL_{it} = De-jure Measure)

Variables	All Middle Income Countries					
	I		II		III	
	Dependent Variable= $FDEB_{it}$		Dependent Variable= $FDBK_{it}$		Dependent Variable= $FDSM_{it}$	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
FL_{it}	1.674	0.006	1.751	0.004	1.008	0.010
IQ_{it}	0.326	0.015	0.431	0.053	0.386	0.057
LGD_{it}	1.085	0.000	0.191	0.010	0.473	0.023
TO_{it}	4.235	0.021	3.009	0.077	2.870	0.098
Upper Middle Income Countries						
FL_{it}	1.203	0.071	0.724	0.056	0.482	0.033
IQ_{it}	0.231	0.067	0.341	0.032	0.314	0.076
LGD_{it}	1.457	0.029	1.258	0.010	0.063	0.070
TO_{it}	2.928	0.708	1.826	0.155	1.022	0.999
Lower Middle Income Countries						
FL_{it}	0.301	0.085	0.286	0.076	0.650	0.080
IQ_{it}	0.242	0.066	0.065	0.088	0.414	0.054
LGD_{it}	0.561	0.051	0.279	0.029	0.235	0.039
TO_{it}	-0.899	0.998	-0.540	0.793	-0.442	1.000

The results of causality analysis presented in Table 6 explain that Model 1, 2, 3 and 5 support the bidirectional causal relationship between financial development and financial liberalisation which indicate that financial development and financial liberalisation are reinforcing each other in middle income countries. Demetriades and Hussein (1996), Hassan, *et al.* (2010) and Demirhan (2011) found similar results in their studies. However, there are evidence of unidirectional causality running from financial

Table 6

The Result of DH Panel Causality Test

Model 1: $FDEV_{it}, FL_{it(Defacto)}, IQ_{it}, LGD_{it}, TO_{it}$				Model 2: $FDEV_{it}, FL_{it(Defacto)}, IQ_{it}, LGD_{it}, TO_{it}$			
Hypothesis	W-Stat	Zbar-Stat	P-Value	Hypothesis	W-Stat	Zbar-Stat	P-Value
$(FDEV_{it} \rightarrow FL_{it})$	4.160	3.458	0.000	$(FDBK_{it} \rightarrow FL_{it})$	4.564	4.235	0.000
$(FL_{it} \rightarrow FDEV_{it})$	3.446	2.083	0.037	$(FL_{it} \rightarrow FDBK_{it})$	6.056	7.109	0.000
$(FDEV_{it} \rightarrow IQ_{it})$	3.730	2.635	0.008	$(FDBK_{it} \rightarrow IQ_{it})$	3.676	2.519	0.011
$(IQ_{it} \rightarrow FDEV_{it})$	2.977	1.184	0.236	$(IQ_{it} \rightarrow FDBK_{it})$	3.812	2.793	0.005
$(FDEV_{it} \rightarrow LGD_{it})$	7.438	9.785	0.000	$(FDBK_{it} \rightarrow LGD_{it})$	5.835	6.694	0.000
$(LGD_{it} \rightarrow FDEV_{it})$	6.989	8.918	0.000	$(LGD_{it} \rightarrow FDBK_{it})$	19.76	33.54	0.000
$(FDEV_{it} \rightarrow TO_{it})$	4.938	4.965	0.000	$(FDBK_{it} \rightarrow TO_{it})$	8.120	11.10	0.000
$(TO_{it} \rightarrow FDEV_{it})$	3.818	2.805	0.005	$(TO_{it} \rightarrow FDBK_{it})$	3.324	1.852	0.063
Model 3: $FDSM_{it}, FL_{it(Dejure)}, IQ_{it}, LGD_{it}, TO_{it}$				Model 4: $FDEV_{it}, FL_{it(Dejure)}, IQ_{it}, LGD_{it}, TO_{it}$			
Hypothesis	W-Stat	Zbar-Stat	P-Value	Hypothesis	W-Stat	Zbar-Stat	P-Value
$(FDSM_{it} \rightarrow FL_{it})$	5.124	5.314	0.000	$(FDEV_{it} \rightarrow FL_{it})$	2.949	5.475	0.000
$(FL_{it} \rightarrow FDSM_{it})$	4.252	3.634	0.000	$(FL_{it} \rightarrow FDEV_{it})$	1.446	0.920	0.357
$(FDSM_{it} \rightarrow IQ_{it})$	3.004	1.236	0.216	$(FDEV_{it} \rightarrow IQ_{it})$	1.339	0.597	0.550
$(IQ_{it} \rightarrow FDSM_{it})$	2.554	0.367	0.713	$(IQ_{it} \rightarrow FDEV_{it})$	2.056	2.769	0.005
$(FDSM_{it} \rightarrow LGD_{it})$	8.332	11.508	0.000	$(FDEV_{it} \rightarrow LGD_{it})$	2.545	4.252	0.000
$(LGD_{it} \rightarrow FDSM_{it})$	4.263	3.663	0.000	$(LGD_{it} \rightarrow FDEV_{it})$	3.785	8.010	0.000
$(FDSM_{it} \rightarrow TO_{it})$	4.175	3.493	0.000	$(FDEV_{it} \rightarrow TO_{it})$	2.672	4.635	0.000
$(TO_{it} \rightarrow FDSM_{it})$	4.290	3.714	0.000	$(TO_{it} \rightarrow FDEV_{it})$	1.671	1.600	0.109
Model 5: $FDBK_{it}, FL_{it(Dejure)}, IQ_{it}, LGD_{it}, TO_{it}$				Model 6: $FDSM_{it}, FL_{it(Dejure)}, IQ_{it}, LGD_{it}, TO_{it}$			
Hypothesis	W-Stat	Zbar-Stat	P-Value	Hypothesis	W-Stat	Zbar-Stat	P-Value
$(FDBK_{it} \rightarrow FL_{it})$	2.916	5.376	0.000	$(FDSM_{it} \rightarrow FL_{it})$	2.371	3.724	0.000
$(FL_{it} \rightarrow FDBK_{it})$	2.825	5.099	0.000	$(FL_{it} \rightarrow FDSM_{it})$	1.664	1.580	0.114
$(FDBK_{it} \rightarrow IQ_{it})$	1.789	1.960	0.049	$(FDSM_{it} \rightarrow IQ_{it})$	1.907	2.317	0.020
$(IQ_{it} \rightarrow FDBK_{it})$	2.960	5.508	0.000	$(IQ_{it} \rightarrow FDSM_{it})$	1.938	2.411	0.015
$(FDBK_{it} \rightarrow LGD_{it})$	2.615	4.462	0.000	$(FDSM_{it} \rightarrow LGD_{it})$	3.035	5.736	0.000
$(LGD_{it} \rightarrow FDBK_{it})$	4.712	10.81	0.000	$(LGD_{it} \rightarrow FDSM_{it})$	2.036	2.707	0.006
$(FDBK_{it} \rightarrow TO_{it})$	4.987	11.65	0.000	$(FDSM_{it} \rightarrow TO_{it})$	1.791	1.967	0.049
$(TO_{it} \rightarrow FDBK_{it})$	2.442	3.940	0.000	$(TO_{it} \rightarrow FDSM_{it})$	1.892	2.271	0.023

development to financial liberalisation in Model 4 and 6. The feedback hypothesis between institutional quality and financial development is accepted in Model 2, 5 and 6 while hypothesis supporting unidirectional causal relation from financial development to institutional quality in Model 1 and institutional quality to financial development in Model 4. The results support the evidence of bidirectional causality between economic growth and financial development in all Models which reveals that economic growth is

essential for financial development and financial development is conducive for economic growth. Moreover, the results show that financial development and trade openness encouraging each other in middle income countries.

6. CONCLUSION AND POLICY RECOMMENDATIONS

This study examines the relationship between financial development, financial liberalisation and institutional quality in middle income countries (MICs) over the period 1995-2015. Empirical results estimated by applying AMG estimators indicate that financial liberalisation and institutional quality have a positive effect on financial development. The results imply that financial liberalisation process provide incentives to foreign investors by relaxing constraints on external financing and increase the scope of financial sector development. A well-developed institutional structure help to attract financial inflows by offering more secure property rights and better law and order situation. Similarly, economic growth and trade openness are essential for the development of financial sector of MICs. Causality results demonstrate that financial development and financial liberalisation, institutional quality and financial development are reinforcing each other in MICs.

In terms of policy recommendations, empirical findings suggest that financial policies that encourage the development of the financial sector, promote financial integration and minimise government intervention in the financial sector should be formulated. Further, the establishment of financial institutions should be encouraged because they facilitate credit delivery to the private sector, which helps strengthen prudential regulation systems and the operation of stock markets without major disruptions. All these factors promote financial development, encourage resource allocation to the most productive sectors and enable a trusting environment that is favourable to both savers and investors. To reap the full benefits of financial development, countries need to introduce institutional reforms, especially in developing countries, and minimise obstacles to further global integration. Moreover, a better institutional structure is essential to accelerate the process of financial development. So, government of middle income countries needs to introduce those policies that control corruption, strengthen their bureaucratic quality, control and enforce law and order conditions and ensure democratic accountability. After achieving a sustainable and high level of institutional quality, financial liberalisation can foster its true advantages and boost financial development and in turn economic growth.

APPENDIX

Table A1

List of Selected Middle Income Countries

Armenia	Macedonia, FYR
Bangladesh	Malaysia
Bolivia	Mauritius
Brazil	Mexico
Bulgaria	Namibia
China	Nigeria
Colombia	Pakistan
Costa Rica	Papua New Guinea
El Salvador	Philippines
Fiji	Panama
Georgia	Peru
Ghana	Romania
India	South Africa
Indonesia	Sri Lanka
Jamaica	Swaziland
Kazakhstan	Zambia
Kenya	Thailand
Kyrgyz Republic	Turkey
Mongolia	

Table A2

Summary Statistics

Variables	Mean	Std. Dev	Min.	Max.
FD_{it}	21.060	18.768	0	100
BK_{it}	25.647	21.874	0	100
SM_{it}	17.122	16.045	0	100
KAQ_{it}	0.242	1.390	-1.894	2.389
$LFCTO_{it}$	4.782	0.682	3.074	7.794
IQ_{it}	17.863	3.767	0	32.777
LG_{it}	8.001	0.824	6.102	9.375
TO_{it}	0.699	0.3403	0.139	2.202

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