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Pre- and post-crisis dynamics of financial globalisation for financial development in Africa

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Abstract

This study unites two streams of research by simultaneously focusing on the impact of financial globalisation on financial development and pre- and post-crisis dynamics of the investigated relationship. The empirical evidence is based on 53 African countries for the period 2004-2011 and Generalised Method of Moments. The following findings are established. First, whereas marginal effects from financial globalisation are positive on financial dynamics of activity and size, corresponding net effects (positive thresholds) are negative (within range). Second, while decreasing financial globalisation returns are apparent to financial dynamics of depth and efficiency, corresponding net effects (negative thresholds) are positive (not within range). Third, financial development dynamics are more weakly stationary and strongly convergent in the pre-crisis period. Fourth, the net effect from the: pre-crisis period is lower on money supply and banking system efficiency; post-crisis period is positive on financial system efficiency and pre-crisis period is positive on financial size. Policy implications are discussed.

JEL Classification: F02; F21; F30; F40; O10
Keywords: Banking; Financial crisis; Financial development

1. Introduction

There are at least four reasons for assessing pre- and post-crisis dynamics[1] of financial globalisation for financial development in Africa, notably: surplus liquidity issues; substantial need for foreign investment to finance Africa's growing projects; ongoing debates on the effect of financial globalisation on development and gaps in the literature assessing outcomes of the recent global financial crisis on the continent's development[2].

First, a major and longstanding financial development concern in Africa has been the substantially documented issue of surplus liquidity that is inhibiting financial access to corporations and households (Saxegaard, 2006; Fouda, 2009; Asongu, 2014a). Second, African business literature is consistent on the crucial need for foreign investment to finance the continent's growing ambitions and projects (Bartels et al., 2009; Tuomi, 2011; Darley, 2012). Third, the recent (2007-2008) financial crisis has reignited the debate over the benefits of regional financial integration and consequences of increasing financial globalisation in Africa (Price & Elu, 2014; Motelle & Biekpe, 2015). Fourth, as far as we have reviewed, the bulk of literature assessing the development outcomes of the financial crisis on the continent has failed to engage pre- and post-crisis effects of financial globalisation on financial intermediary development.

To the best our knowledge, the extant literature on continental effects of the financial crisis has for the most part focused on: growth (Brambila-Macias & Massa, 2010; Chauva & Geis, 2011; Price & Elu, 2014); financial flows (e.g. remittances and foreign direct investment (FDI)) and other macroeconomic outcomes (Massa & Te Velde, 2008 ; Arieff et al., 2010; Allen & Giovannetti, 2010) and financial development (Massa & Te Velde, 2008; Motelle & Biekpe, 2015). Accordingly, some studies have: assessed the impact of the crisis on capital flows in terms of foreign aid and remittances (e.g. Arieff et al., 2010); used financial development as a channel through which the financial crises has affected growth (Elu & Price, 2014); examined the underlying effect on trade (Allen & Giovannetti , 2010); engaged a limited number of countries with well-functioning financial markets (Massa & Te Velde, 2008) and investigated

[1] Dynamics within the framework of this study refer to marginal, net and threshold effects. A positive financial globalisation threshold is the level of FDI inflows required for an initially negative effect on financial development to become positive.

[2] Crisis, crises and 'financial crises' are used interchangeably to denote the 2007-2008 financial crises.

the relevance of FDI as a mechanism by which the crisis has affected economic growth (Brambila-Macias & Massa, 2010).

Noticeably, the above literature leaves room for improvement in four main areas. First, a direct engagement of financial development externalities from the crisis is scarce. In essence, whereas Massa and Te Velde (2008) have adopted selected countries from a stock market perspective, very few African countries have financial markets that are globally integrated (Alagidede et al., 2011, p. 1333). Hence, continental policy implications of the underlying study are skewed exclusively towards African countries with well-functioning and internationally integrated stock markets. Moreover, some studies that have engaged the financial intermediary sector have also been: positioned on selected countries (Motelle & Biekpe, 2015) and limited to examining financial channels by which the crisis has affected macroeconomic outcomes like economic growth (Elu & Price, 2014). Second, with the exception of Massa and Te Velde (2008) that have focused on financial globalisation in terms of FDI (albeit on selected countries), scholarly focus on financial globalisation externalities has been limited. In essence, as we have highlighted above, the conception of capital flows has been restricted to aid and remittances, for the most part. Even the comprehensive analysis of Arieff et al. (2010) has failed to assess the effects on financial globalisation, despite engaging a plethora of macroeconomic and institutional outcomes, notably: trade and fiscal balances, remittances, foreign aid, poverty reduction, food security and political stability. The present inquiry which is positioned on 'effects of' FDI steers clear of the highlighted stream on 'effects on' FDI. Third, as far as we have reviewed, extant literature has failed to compare pre- and post-crisis effects in order to clearly articulate a 'crisis impact'. Fourth, the post-crisis literature has not exhaustively engaged the crisis in light of the Henry (2007) and Kose et al. (2011) hypothesis within the framework of initial domestic financial development (and financial globalisation) conditions for the materialisation of financial globalisation rewards in domestic financial development[3]. Asongu (2014b) and Asongu and De Moor (2015), in attempting to investigate the underlying hypothesis, have not positioned their inquiries within the specific context of the crisis notably: in terms of motivation, sampling and comparative modelling.

[3] "*In this paper we develop a unified empirical framework for characterizing such threshold conditions. We find that there are clearly identifiable thresholds in variables such as financial depth and institutional quality: the cost-benefit trade-off from financial openness improves significantly once these threshold conditions are satisfied*" (Kose et al., 2011, p.147).

The present inquiry contributes to the extant literature by filling identified gaps above. It employs all dimensions identified by the Financial Development and Structure Database (FDSD) of the World Bank and interactive Generalised Method of Moments (GMM) to assess the impact of financial globalisation on financial development in 53 African countries[4]. Hence, the study unites two streams of research by simultaneously focusing on the: impact of financial globalisation on financial development and pre- and post-crisis dynamics in the investigated relationship. These dynamics are articulated with marginal, threshold and net effects of financial globalisation. This emphasis enables the assessment of the Henry (2007) and Kose et al. (2011) hypothesis while at the same comparatively investigating pre- and post-crisis effects of financial globalisation.

The rest of the study is structured as follows. Section 2 reviews the relevant literature on development outcomes of the 2007-2008 financial crises in Africa. The data and methodology are covered in Section 3. Section 4 discusses empirical results and implications. Section 5 concludes with future directions.

2. Financial crisis and development in Africa

As far as we have reviewed, the literature on development outcomes of the global financial crisis on Africa can be discussed in three main strands, notably, the effect of the crisis on: growth, financial flows (aid, remittances and foreign direct investment) and other macroeconomic outcomes and financial development.

In the first strand, Brambila-Macias and Massa (2010) have employed a least-squares dummy variable (LSDV) estimator to assess the nexus between economic growth and private capital flows on a sample of 15 African countries for the period 1980-2008. The findings show that the financial crisis is very likely to affect Africa's growth via a financial globalisation channel. Chauva and Geis (2011) present a comprehensive account of the: relevance of various transmission mechanisms; repercussions of the crisis on GDP growth; fiscal and monetary policy responses to challenges from the crisis and medium- and long-term concerns for sustainable recovery and/or consolidation of resilience against future crises. The study concludes that fluctuations of GDP components have not been substantially different from fluctuations

[4] The engaged financial dimensions include: financial depth (overall money supply and financial system deposits); financial efficiency (at banking and financial system levels); financial activity (from banking and financial system perspectives) and financial size.

experienced in the recent past. Price and Elu (2014) have assessed whether regional currency integration amplifies macroeconomic shocks by using the Central African Franc Zone (CFAZ) as a case study. The authors have concluded that during the financial crises, credit contraction engendered more growth-inhibiting consequences in countries within the CFAZ.

The second strand focuses on the effect of the crisis on capital flows and other macroeconomic outcomes. Within this strand, Massa and Te Velde (2008) have assessed whether eight countries that are considered as success stories on the continent run the risk experiencing adverse effects to conclude that sampled countries were adversely affected through real and financial contagions, notably, via strong reliance on: (i) foreign owned banks and FDI (Ghana, Mali, Mozambique and Tanzania); (ii) remittances, tourism and internationally integrated domestic stock markets (Uganda and Kenya) and (iii) deficits (in fiscal and current accounts) and international reserves (Ghana). According to Arieff et al. (2010), in spite of initial optimism that Africa had not been strongly affected by the crisis, average growth rates were estimated to fall in 2009. The authors examine the continent's vulnerability to the crisis and implications for fiscal balances, poverty alleviation, political stability and economic growth. Allen and Giovannetti (2010) focus on mechanisms by which the crisis was transmitted with particular emphasis on fragile states. The study concludes that trade and remittances are important channels.

In the third strand, as far as we have reviewed, very few studies have engaged the effect of the financial crisis on the financial sector in Africa. Massa and Te Velde (2008) have been concerned with country-specific studies to establish that stocks in the Kenyan financial market plummeted by 40%. Motelle and Biekpe (2015) have recently confirmed the hypothesis that enhanced financial integration fuels financial sector instability in the Southern African Development Community (SADC). This finding is consistent with Elu and Price (2014) discussed above.

The present inquiry complements the extant literature by examining pre- and post-crisis dynamics of financial globalisation for financial development in Africa. How this contribution steers clear of and contributes to the underlying literature have already been engaged in the introduction. Meanwhile an important concern merit address before we unfold the empirical dimension of the inquiry, notably: the intuition motivating expectations of pre- and post-crisis dynamic effects of financial globalisation on financial development. This concern is elicited on

two counts, namely, the intuition for: dynamic impacts and pre- and post-crisis impacts that are exogenous to financial development.

First, consistent with Asongu and De Moor (2015), threshold effects from financial globalisation run both ways. Hence, negative (due to decreasing marginal effects) and positive (from increasing marginal impacts) thresholds may be expected depending on whether the effect of financial globalisation on financial development engenders economies or diseconomies of scale. In essence, economies (diseconomies) of scale results in positive (negative) thresholds from positive (negative) marginal effects. A hypothetical increasing return derives from either external economies of scale (financial externalities) or internal economies of scale (financial internalities). We are more concerned about the former because a FDI inflow is conceptually an external factor to domestic financial development[5]. An interesting literature on positive marginal effects on the financial sector as a result of growing financial integration has been documented by Wen and Zhou (2012). The authors have attributed increasing marginal effects from financial globalisation to be the result of improvements in a plethora of factors, namely: wages, technology levels, social welfare and interest rate received by depositors. According to McCombie and Spreafico (2014, p.18), external economies are also the outcome of growing competition in the underlying industry. It follows that the perspectives of Spreafico (2014) and McCombie and Spreafico (2014) intersect on the position that financial competition from financial globalisation may either be a source of efficiency (economies) or inefficiency (diseconomies) in domestic financial development.

Second, from the crisis perspective, the intuition that pre- and post-crisis effects are potentially exogenous to financial development is consistent with the engaged literature at two levels: (i) the recent financial crisis has limited capital inflows in terms of FDI into Africa and (ii) reductions in corresponding capital inflows have had some incidence on macroeconomic outcomes (see Brambila-Macias & Massa, 2010) including financial development (see Motelle & Biekpe, 2015).

[5] The estimation technique is also tailored to handle the potential endogeneity in FDI inflows.

3. Data and Methodology

3.1 Data

We investigate a panel of 53 African countries with data for the period 2004-2011 from African Development Indicators (ADI) and the Financial Development and Structure Database (FDSD) of the World Bank. Limitation to the year 2011 is due to data availability constraints. Accordingly, 2011 is the most recent date in the FDSD. The periodicity is motivated by the need to have 5 years in both the pre-crisis and post-crisis samples. Hence the two sub-samples are 2004-2008 and 2007-2011, respectively. The sampling is tailored to nullify the 2007-2008 crisis period in both sub-samples so that the pre- and post-crisis effects are apparent. Moreover, we overlap the crisis period in both sub samples because the adopted estimation technique (GMM) is not consistent with a periodicity of less than 5 years. Given that the FDSD is limited to the year 2011, the obvious post-crisis period is 2007-2011. In the same vein, for the purpose of comparative symmetry, the pre-crisis period consists of a 5 year periodicity (2004-2008). This latter clarification doubles as a justification for adopting a starting year of 2004. In light of the above, given that the crisis period is embodied in the two-subsamples, we can reasonably infer that when underlying sub-samples are compared under homogenous specifications, the effect of the crisis is nullified so that only the 2004-2006 and 2009-2011 periodicities are relevant to account for pre- and post-crisis effects respectively.

Consistent with the engaged literature (Brambila-Macias & Massa, 2010; Kose et al., 2011; Asongu, 2014b), FDI is adopted as the financial globalisation variable. The dependent variables which are in accordance with Asongu and De Moor (2015) are financial development dynamics of depth (at overall economic and financial system levels)[6], efficiency (banking and financial system efficiency)[7], activity (banking and financial system activity)[8] and size[9]. Hence,

[6] "*Borrowing from the FDSD, this paper measures financial depth both from overall-economic and financial system perspectives with indicators of broad money supply (M2/GDP) and financial system deposits (Fdgdp) respectively. While the former denotes the monetary base plus demand, saving and time deposits, the later indicates liquid liabilities. Since we are dealing exclusively with developing countries, we distinguish liquid liabilities from money supply because a substantial chunk of the monetary base does not transit through the banking sector*" (Asongu, 2014b, p. 189).

[7] "*By financial intermediation efficiency here, this study neither refers to the profitability-oriented concept nor to the production efficiency of decision making units in the financial sector (through Data Envelopment Analysis: DEA). What we seek to highlight is the ability of banks to effectively fulfill their fundamental role of transforming mobilized deposits into credit for economic operators (agents). We adopt proxies for banking-system-efficiency and financial-system-efficiency (respectively 'bank credit on bank deposits: Bcbd' and 'financial system credit on financial system deposits: Fcfd')*" (Asongu, 2014b, pp.189-190).

with the exception of financial size, two measures of each financial dynamic are used for robustness purposes.

In order to ensure that estimated results are not biased by omitted variables, this paper includes six control variables: economic growth (GDP growth), public investment, inflation, trade openness, foreign aid and a lagged term of the dependent variable. The choice of these control variables is in accordance with Asongu and De Moor (2015). Moreover, the variables have been substantially documented in financial development studies, inter alia: Greenwood and Jovanovic (1990), Saint-Paul (1992), Levine (1997), Huyben and Smith (1999), Boyd et al. (2001), Levine, (2003ab), Fielding (2004), Do and Levchenko (2004), Huang and Temple, (2005) and Huang (2011). First, stable inflation is positively linked to financial development because both empirical (Boyd et al., 2001) and theoretical (Huybens & Smith, 1999) literature support the view that chaotic inflation is associated with less active, less efficient and smaller financial intermediary institutions. Second, in an increasingly globalised world, investment has been established to be positively linked to financial development (see Huang, 2011).

Third, there is also some consensus on the position that policies that are friendly to trade openness are conducive to higher levels of financial development (see Do & Levchenko, 2004; Huang & Temple, 2005). Fourth, a growing economy is more likely to be related to reducing cost in financial intermediation, owing to increased competition and availability of funds for productive investments (Levine, 2003ab). Fifth, while foreign aid is expected to improve financial development because it is theoretically destined to reduce the investment-financing gap in poor countries (Easterly, 2005), from a practical standpoint, the effect may also be negative on domestic financial development if a great chunk of allocated funds: (i) is spent in donor countries and/or (ii) siphoned by corrupt officials in recipient countries and deposited in tax havens with jurisdictions that are traceable to developed countries.

Variable definitions and corresponding sources are disclosed in Appendix 1 while the summary statistics is provided in Appendix 2. The summary statistics reveals that: (i) the

[8] "*By financial intermediary activity here, the work highlights the ability of banks to grant credit to economic operators. We proxy for both banking intermediary activity and financial intermediary activity with "private domestic credit by deposit banks: Pcrb" and "private credit by domestic banks and other financial institutions: Pcrbof" respectively*" (Asongu, 2014b, p. 190).

[9] In accordance with the FDSD, financial intermediary size is measured as the ratio of "deposit bank assets" to "total assets" (deposit bank assets on central bank assets plus deposit bank assets: *Dbacba*).

variables are comparable and (ii) reasonable estimated linkages can be established because the variables exhibit substantial variations. The correlation matrix in Appendix 3 enables the study to avoid potential concerns of multicollinearity. The independent variables are not subject to high degrees of substitution while the high correlations between financial indicators do not represent substantial concerns because they are employed exclusively as dependent variables. In essence, the dependent variables are used in distinct specifications. As highlighted above, two dependent variables are selected within each financial category for the purpose of robustness checks.

3.2 Methodology

Consistent with Asongu and De Moor (2015), the study adopts an endogeneity-robust GMM approach for a fivefold reason. Whereas the first-two are initial requirements for the estimation strategy, the last-three are technical rewards of the estimation approach. First, the rule of thumb threshold (0.800) of first-order autocorrelation required to ascertain persistence in the dependent variables is met. In essence, Appendix 4 shows the following correlations between financial indicators and their first lagged values: 0.983, 0.990, 0.943, 0.981, 0.991, 0.994, 0.933 respectively for money supply, financial system deposits, banking system efficiency, financial system efficiency, banking system activity, financial system activity and financial size. Second, the number of years in a time series of the full sample (T=8) is less than the number of cross-sections (N=53). Therefore N>T. Third, the modelling strategy enables the control for endogeneity in all regressors. Fourth, with the estimation approach, cross-country variations are not eliminated. Fifth, the technique reduces biases in the difference estimator that are associated with small samples. It is on the basis of this fifth advantage that the system GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998) has been established by Bond et al. (2001, pp. 3-4) to have better efficiency properties when compared to the difference estimator (Arellano & Bond, 1991). This is essentially because in order to exploit all orthogonal conditions between the error terms and lagged dependent variables, the technique uses: lagged differences of the regressors as instruments in the level equation and lagged levels of the regressors as instruments in the differenced equation.

This study employs a Roodman (2009ab) extension of Arellano and Bover (1995) that uses forward orthogonal deviations instead of first differences. The extension has the advantage

of limiting instrument proliferation and controlling for cross-sectional dependence (see Love & Zicchino, 2006; Baltagi, 2008). The specification is *two-step* to account for heteroscedasticity because the *one-step* approach is homoscedasticity-consistent.

The standard system GMM estimation procedure is summarised by the following equation in levels (1) and first difference (2)

$$FD_{i,t} = \sigma_0 + \sigma_1 FD_{i,t-\tau} + \sigma_2 FI_{i,t} + \sigma_3 FIFI_{i,t} + \sum_{h=1}^{5} \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (1)$$

$$\begin{aligned} FD_{i,t} - FD_{i,t-\tau} = {} & \sigma_0 + \sigma_1 (FD_{i,t-\tau} - FD_{i,t-2\tau}) + \sigma_2 (FI_{i,t} - FI_{i,t-\tau}) + \sigma_3 (FIFI_{i,t} - FIFI_{i,t-\tau}) \\ & + \sum_{h=1}^{5} \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + \varepsilon_{i,t-\tau} \end{aligned} \quad (2)$$

Where: $FD_{i,t}$ is a financial development dependent variable (depth, efficiency, activity or size) of country i at period t; α is a constant; τ represents tau ; FI, Net FDI inflows; $FIFI$, interaction between Net FDI inflows (FI) and Net FDI inflows (FI); W is the vector of control variables (*GDP growth, inflation, public investment, foreign aid* and *trade openness*), η_i is the country-specific effect, ξ_t is the time-specific constant and $\varepsilon_{i,t}$ the error term.

We devote some space to articulating some pitfalls associated with interactive regressions. According to Brambor et al. (2006), all constitutive variables should be involved in the specifications. Moreover, for corresponding interaction estimates to have economic meaning, they should be interpreted as conditional marginal effects. The resulting FDI thresholds should also be within the range disclosed by the summary statistics.

4. Empirical results

4.1 Presentation of results

Tables 1, 2 and 3 present findings corresponding respectively to regressions with: 'financial depth', 'financial efficiency' and 'financial activity and financial size'. Three specifications characterise each of the seven financial development variables, namely, the: full sample, the pre-crisis sample and the post-crisis sample. The study uses four principal information criteria to examine the validity of estimated models. First, the Fisher test is employed to assess the joint validity of estimated parameters. Second, in order to ascertain the

absence of autocorrelation in the residuals, the null hypothesis of the second-order Arellano and Bond autocorrelation test in difference (AR(2)) should not be rejected. Third, the null hypotheses corresponding to the Sargan and Hansen over-identification restrictions (OIR) tests should also not be rejected for the validity of instruments. Accordingly, the Hansen (Sargan) test is robust (not robust) but weakened (not weakened) by instruments. Hence, the modelling approach limits instrument proliferation and/or restricts over-identification by ensuring that in every specification the number of instruments is less than the corresponding number of cross sections. Fourth, the study also employs the Difference in Hansen Test (DHT) for exogeneity of instruments to further examine the validity of the Hansen OIR test.

In Table 1, while financial depth is in the perspective of 'overall money supply' on the left-hand-side (LHS), it is represented as financial system deposits or liquid liabilities on the right-hand-side (RHS). On the computation of threshold and net effects from significant marginal impacts, if 0.181 and -0.008 respectively correspond to estimated parameters from FDI and 'FDI×FDI', the potential FDI threshold at which the unconditional positive impact is overwhelmed by the growing conditional negative impact for an overall negative effect is 22.62 (0.181/0.008) whereas the net effect is 0.138 (0.181 + [-0.008×5.268])[10]. The following findings can be established. First, on the LHS, whereas the net effect of financial globalisation is higher in the post-crisis period compared to the full sample, it is 'not applicable' (na) for the pre-crisis era because the corresponding marginal impact is not significant. Second, on the RHS, while there is a positive net effect for the full sample, it is na for the pre- and post-crisis periods due to the insignificance of associated marginal impacts. Third, the negative thresholds corresponding to the significant marginal effects are not within the FDI range (-4.578 to 84.942) provided by the summary statistics. Fourth, with the exception of GDP growth, significant control variables have expected signs. The negative effect of GDP growth may be traceable to the absence of broad-based growth in the African continent. Accordingly, in spite of over two decades of growth resurgence that began in the mid 1990s (Fosu, 2015, p.44), the continent has been married with immiserizing growth, as evident from an April 2015 World Bank report which has revealed that extreme poverty has been decreasing in all regions of the world with the exception of Africa (World Bank, 2015).

[10] 5.268 is the mean value of FDI.

Table 1: Financial Depth and Financial Globalisation

	Financial Depth					
	Economic Depth (Money Supply)			Financial System Depth (Deposits)		
	Full Sample	Pre-crisis	Post-crisis	Full Sample	Pre-crisis	Post-crisis
Constant	-1.854	0.426	**7.018*** **	**-3.174** **	0.307	**4.691*** **
	(0.200)	(0.678)	**(0.000)**	**(0.010)**	(0.766)	**(0.000)**
Money Supply (-1)	**0.995*** **	**1.009*** **	**0.924*** **	---	---	---
	(0.000)	**(0.000)**	**(0.000)**			
Financial System Deposits (-1)	---	---	---	**1.052*** **	**1.033*** **	**0.927*** **
				(0.000)	**(0.000)**	**(0.000)**
Foreign Direct Investment(FDI)	0.077	**-0.152** **	**0.181***	**0.138** **	-0.062	0.056
	(0.113)	**(0.048)**	**(0.053)**	**(0.035)**	(0.197)	(0.449)
FDI*FDI	**-0.003***	0.004	**-0.008***	**-0.005** **	0.0007	-0.003
	(0.072)	(0.183)	**(0.056)**	**(0.016)**	(0.829)	(0.265)
GDP growth	**-0.286*** **	**-0.129*** **	**-0.220*** **	**-0.155*** **	-0.026	**-0.192*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	(0.335)	**(0.000)**
Inflation	-0.006	**-0.022** **	**0.140*** **	**-0.018** **	-0.013	0.024
	(0.642)	**(0.027)**	**(0.001)**	**(0.018)**	(0.118)	(0.466)
Public Investment	-0.029	0.056	**-0.050**	**0.035***	**0.064***	0.025
	(0.271)	(0.252)	**(0.119)**	**(0.092)**	**(0.067)**	(0.246)
Foreign Aid	0.068	0.055	**-0.233*** **	**0.069*** **	-0.0003	-0.008
	(0.115)	(0.260)	**(0.000)**	**(0.005)**	(0.992)	(0.850)
Trade	**0.043*** **	0.012	**0.027*** **	**0.018** **	0.0024	**0.024*** **
	(0.000)	(0.223)	**(0.007)**	**(0.027)**	(0.733)	**(0.000)**
Thresholds	-25.66	na	-22.62	-27.60	na	na
Net Effects	0.061	na	0.138	0.111	na	na
AR(1)	(0.001)	**(0.142)**	(0.003)	(0.001)	**(0.128)**	(0.007)
AR(2)	**(0.354)**	**(0.280)**	**(0.350)**	**(0.394)**	**(0.120)**	**(0.197)**
Sargan OIR	(0.034)	**(0.276)**	(0.001)	(0.002)	(0.003)	(0.001)
Hansen OIR	(0.052)	**(0.172)**	**(0.270)**	**(0.166)**	**(0.119)**	**(0.254)**
DHT for instruments						
(a)Instruments in levels						
H excluding group	(0.051)	**(0.312)**	**(0.123)**	(0.033)	**(0.618)**	**(0.155)**
Dif(null, H=exogenous)	**(0.181)**	**(0.178)**	**(0.510)**	**(0.596)**	(0.055)	**(0.431)**
(b) IV (years, eq(diff))						
H excluding group	**(0.106)**	**(0.127)**	**(0.208)**	**(0.106)**	**(0.190)**	**(0.173)**
Dif(null, H=exogenous)	**(0.105)**	**(0.573)**	**(0.556)**	**(0.544)**	**(0.121)**	**(0.650)**
Fisher	**788.19*** **	**1429.77*** **	**1167.35*** **	**1578.43*** **	**1460.48*** **	**2057.04*** **
Instruments	37	34	35	37	34	35
Countries	46	46	42	46	46	42
Observations	272	168	147	272	168	147

*,**,***: significance levels of 10%, 5% and 1% respectively. Full sample: 2004-2011. Pre-crisis: 2004-2008. Post-crisis: 2007-2011. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. na: not applicable because of insignificant marginal effects.

The following findings can be established from Table 2. First, on the LHS for banking system efficiency, while the net effect of financial globalisation is higher in the post-crisis era compared to the full sample, it is 'not applicable' (na) for the pre-crisis period. Second, on the RHS, the net effect of the full sample is higher than that of the pre-crisis period, whereas that corresponding to the post-crisis period is na. Third, corresponding negative thresholds are not within range. Fourth, most of the significant control variables have signs that are opposite to those established in Table 1. This is essentially because the financial development indicators are conflicting by conception and measurement. Accordingly, financial allocation efficiency improves to the detriment of financial deposits because the former is conceived and measured as the ability of financial institutions to transform mobilised deposits into credit for economic operators.

Table 2: Banking Efficiency and Financial Globalisation

	Financial Efficiency					
	Banking System Efficiency (BcBd)			**Financial System Efficiency (FcFd)**		
	Full Sample	Pre-crisis	Post-crisis	Full Sample	Pre-crisis	Post-crisis
Constant	**19.231*** **	4.305	**23.514*** **	2.429	-3.599	**13.751*** **
	(0.000)	(0.298)	**(0.000)**	(0.249)	(0.315)	**(0.000)**
Banking System Efficiency (-1)	**0.848*** **	**0.863*** **	**0.816*** **	---	---	---
	(0.000)	**(0.000)**	**(0.000)**			
Financial System Efficiency (-1)	---	---	---	**0.912*** **	**0.928*** **	**0.866*** **
				(0.000)	**(0.000)**	**(0.000)**
Foreign Direct Investment (FDI)	**0.281** **	-0.171	**0.526***	**0.356*** **	0.253	-0.098
	(0.034)	(0.539)	**(0.052)**	**(0.000)**	(0.101)	(0.671)
FDI*FDI	**-0.018*** **	0.0003	**-0.026** **	**-0.016*** **	**-0.016*** **	0.005
	(0.005)	(0.964)	**(0.033)**	**(0.000)**	**(0.001)**	(0.615)
GDP growth	**0.547*** **	**0.711*** **	**0.425*** **	**0.633*** **	**0.927*** **	**0.273*** **
	(0.000)	**(0.000)**	**(0.009)**	**(0.000)**	**(0.000)**	**(0.002)**
Inflation	**0.0006*** **	**0.0006*** **	-0.162	0.002	0.041	-0.021
	(0.000)	**(0.000)**	(0.317)	(0.959)	(0.537)	(0.807)
Public Investment	**-0.429*** **	**-0.525*** **	0.142	0.005	-0.138	0.118
	(0.000)	**(0.000)**	(0.198)	(0.909)	(0.235)	(0.194)
Foreign Aid	**-0.480*** **	0.074	-0.305	-0.033	-0.066	**-0.278** **
	(0.000)	(0.579)	(0.141)	(0.654)	(0.346)	**(0.033)**
Trade	-0.010	**0.078***	**-0.102*** **	0.028	**0.045***	**-0.032***
	(0.791)	**(0.091)**	**(0.001)**	(0.219)	**(0.093)**	**(0.085)**
Thresholds	-15.61	na	-20.23	-22.25	-15.81	na
Net Effects	0.186	na	0.389	0.271	0.168	na
AR(1)	(0.002)	(0.001)	(0.045)	**(0.156)**	**(0.221)**	**(0.235)**
AR(2)	**(0.103)**	**(0.175)**	**(0.726)**	(0.034)	**(0.824)**	(0.036)
Sargan OIR	**(0.259)**	(0.011)	**(0.326)**	(0.000)	(0.000)	(0.001)
Hansen OIR	**(0.745)**	**(0.700)**	**(0.428)**	**(0.110)**	**(0.140)**	**(0.415)**

DHT for instruments						
(a)Instruments in levels						
H excluding group	**(0.758)**	**(0.511)**	**(0.362)**	**(0.370)**	**(0.240)**	**(0.265)**
Dif(null, H=exogenous)	**(0.592)**	**(0.691)**	**(0.461)**	**(0.089)**	**(0.173)**	**(0.528)**
(b) IV (years, eq(diff))						
H excluding group	**(0.635)**	**(0.696)**	**(0.603)**	**(0.210)**	**(0.159)**	**(0.422)**
Dif(null, H=exogenous)	**(0.702)**	**(0.443)**	**(0.153)**	**(0.120)**	**(0.251)**	**(0.375)**
Fisher	**1139.41*** **	**8975.46*** **	**305.04*** **	**1019.84*** **	**1156.22*** **	**638.54*** **
Instruments	37	34	35	37	34	35
Countries	46	46	42	46	46	42
Observations	279	173	149	272	168	147

*,**,***: significance levels of 10%, 5% and 1% respectively. FDI: Foreign Direct Investment. Full sample: 2004-2011. Pre-crisis: 2004-2008. Post-crisis: 2007-2011. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. na: not applicable because of insignificant marginal effects.

Table 3 presents findings corresponding to financial activity and financial size. The first two main partition columns are related to financial activity regressions whereas the last partition is concerned with financial size. First, the pre-crisis specification in the partition on financial system activity is associated with significant positive marginal effects, a positive threshold and a corresponding negative net effect. Net effects related to other specifications in the first-two partitions are not applicable (na) for the most part. Second, with regard to the last partition on financial size, whereas the net negative effect is higher in the full sample compared to the post-crisis era, it is na in the pre-crisis period. Third, the significant control variables have expected signs for the most part.

Table 3: Financial Activity, Financial Size and Financial Globalisation

	Financial Activity						**Financial Size**		
	Banking System Activity (Pcrb)			**Financial System Activity (Pcrbof)**					
	Full Sample	Pre-crisis	Post-crisis	Full Sample	Pre-crisis	Post-crisis	Full Sample	Pre-crisis	Post-crisis
Constant	-1.393	0.311	0.416	-1.39	**2.507***	0.386	**15.387*** **	**22.879*** **	**53.563*** **
	(0.348)	(0.734)	(0.718)	(0.317)	**(0.056)**	(0.674)	**(0.000)**	**(0.000)**	**(0.000)**
Banking Sys. Activity (-1)	**1.102*** **	**1.059*** **	**1.037*** **	---	---	---	---	---	---
	(0.000)	**(0.000)**	**(0.000)**						
Financial Sys. Activity (-1)	---	---	---	**1.120*** **	**1.090*** **	**1.025*** **	---	---	---
				(0.000)	**(0.000)**	**(0.000)**			
Financial Size (-1)	---	---	---	---	---	---	**0.793*** **	**0.770*** **	**0.400*** **
							(0.000)	**(0.000)**	**(0.000)**
FDI	-0.009	-0.068	**0.157***	-0.057	**-0.218** **	-0.112	**-0.275*** **	-0.064	**-1.948*** **
	(0.834)	(0.256)	**(0.057)**	(0.408)	**(0.012)**	(0.113)	**(0.002)**	(0.615)	**(0.000)**
FDI*FDI	0.001	0.002	-0.005	0.004	**0.011** **	0.005	**0.013*** **	0.002	**0.070*** **
	(0.409)	(0.135)	(0.179)	(0.201)	**(0.012)**	(0.172)	**(0.003)**	(0.659)	**(0.000)**
GDP growth	0.032	**0.104** **	-0.041	0.045	**0.093*** **	**-0.088*** **	0.060	**-0.197*** **	**-0.382*** **
	(0.309)	**(0.038)**	(0.112)	(0.165)	**(0.004)**	**(0.005)**	(0.155)	**(0.000)**	**(0.000)**
Inflation	-0.014	**-0.023*** **	-0.027	-0.011	**-0.034***	**-0.117*** **	**-0.099*** **	**-0.178*** **	**-0.358*** **
	(0.177)	**(0.000)**	(0.413)	(0.479)	**(0.076)**	**(0.004)**	**(0.000)**	**(0.004)**	**(0.001)**
Public Investment	**0.102*** **	-0.044	**0.077*** **	**0.111*** **	**-0.105** **	**0.136*** **	**0.144** **	0.104	**0.562*** **

	(0.006)	(0.179)	**(0.007)**	**(0.000)**	**(0.021)**	**(0.000)**	**(0.013)**	(0.452)	**(0.000)**
Foreign Aid	-0.048	**-0.061****	0.074	**-0.069***	**-0.081****	**0.235*****	-0.018	0.201	0.089
	(0.176)	**(0.011)**	(0.296)	**(0.077)**	**(0.010)**	**(0.000)**	(0.805)	(0.119)	(0.406)
Trade	-0.004	0.0005	-0.0003	-0.011	-0.019	0.004	**0.028***	-0.006	**0.080****
	(0.675)	(0.956)	(0.959)	(0.363)	(0.111)	(0.619)	**(0.087)**	(0.974)	**(0.013)**
Thresholds	na	na	na	na	19.81	na	21.15	na	27.82
Net Effects	na	na	na	na	-0.160	na	-0.206	na	-1.579
AR(1)	(0.013)	(0.050)	**(0.224)**	(0.041)	**(0.343)**	(0.039)	(0.060)	(0.037)	(0.021)
AR(2)	**(0.192)**	**(0.356)**	**(0.123)**	(0.080)	**(0.427)**	**(0.154)**	**(0.445)**	**(0.206)**	**(0.164)**
Sargan OIR	(0.005)	(0.000)	(0.001)	(0.005)	**(0.425)**	(0.001)	(0.020)	(0.000)	(0.000)
Hansen OIR	**(0.489)**	**(0.257)**	**(0.206)**	**(0.462)**	**(0.201)**	**(0.205)**	**(0.580)**	**(0.519)**	**(0.412)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	(0.059)	**(0.158)**	**(0.102)**	(0.061)	**(0.278)**	(0.097)	**(0.171)**	**(0.239)**	**(0.161)**
Dif(null, H=exogenous)	**(0.926)**	**(0.431)**	**(0.438)**	**(0.904)**	**(0.232)**	**(0.446)**	**(0.837)**	**(0.692)**	**(0.655)**
(b) IV (years, eq(diff))									
H excluding group	**(0.269)**	**(0.370)**	**(0.125)**	**(0.228)**	**(0.220)**	**(0.142)**	**(0.596)**	**(0.485)**	**(0.388)**
Dif(null, H=exogenous)	**(0.865)**	**(0.140)**	**(0.712)**	**(0.906)**	**(0.277)**	**(0.596)**	**(0.422)**	**(0.483)**	**(0.439)**
Fisher	**1206*****	**1856.2*****	**3515.5*****	**1369.16*****	**4330.6*****	**2159.8*****	**353.78*****	**235.33 *****	**819.58*****
Instruments	37	34	35	37	34	35	37	34	35
Countries	46	46	42	46	46	42	46	46	42
Observations	272	168	147	274	168	149	274	168	148

*,**,***: significance levels of 10%, 5% and 1% respectively. FDI: Foreign Direct Investment. Syst: System. Full sample: 2004-2011. Pre-crisis: 2004-2008. Post-crisis: 2007-2011. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. na: not applicable because of insignificant marginal effects.

4. 2 Further discussion of results and policy implications

4.2.1 General discussion and implications

In this section, we engage findings that are broad and not specific to pre- and post-crisis emphasis of the inquiry. The negative (positive) marginal effects observed in Tables 1-2 (Table 3) may be traceable to diseconomies (economies) of scale associated with financial globalisation (Wen & Zhou, 2012; Asongu & De Moor, 2015). Conversely, associated positive (negative) net effects imply that in spite of decreasing (increasing) returns of financial globalisation to financial development; there are net gains (losses) to domestic financial development from financial globalisation. Given that increasing marginal effects are preferable to decreasing marginal impacts, the role of policy should be to: (i) sustain the increasing marginal returns associated with financial activity and financial size estimates and (ii) reverse the trend of decreasing marginal returns linked to regressions pertaining to financial depth and financial efficiency. The former policy implication has economic meaning because the modifying positive thresholds at which an unconditional negative effect from financial globalisation becomes positive are within range. The latter policy implication also has economic meaning because the modifying negative thresholds motivating the latter policy implication makes no economic sense. This narrative also

doubles to justify the preference for increasing marginal effects over decreasing marginal impacts in the direction of the discussed policy implication. We recommend that policy should sustain the positive (reverse the negative) marginal effects from FDI by increasing the absorptive capacity of the domestic financial sector through the promotion of measures that: (i) bridge technology gaps between foreign countries; (ii) improve human capital, lifelong learning and knowledge-based economies and (iii) upgrade physical, financial and institutional infrastructure.

4.2.2 Specific discussion and implications

Specific discussions build on comparative insights from pre- and post-crisis estimates. We engaged the discourse in two main strands: direct and indirect comparisons.

Direct comparisons are based on the lagged endogenous estimates of dependent variables. Two main differences are apparent. First, financial development dynamics in the post-crisis era are comparatively more stationary given that absolute values corresponding to lagged endogenous variables are less than 1, for the most part (see financial depth oriented regressions). Second, when the pre- and post-crisis financial development dynamics are stationary, catch-up in the pre-crisis era is moving at a comparatively faster pace (see financial efficiency and financial size regressions). For more insights into the computation of the implied rate of catch-up, in the absence of non-overlapping intervals, tau in the GMM specification is equal 1. In standard convergence literature, the lagged endogenous variable is divided by tau to obtain the catch-up rate (see, Narayan et al., 2011, p.2772; Asongu, 2013, p.50). Overall, convergence in financial development implies that countries with lower rates of financial development are catching-up their counterparts with higher levels. The implication is that financial development dynamics are more weakly stationary and strongly convergent are in the pre-crisis era, compared to the post-crisis époque. The findings on convergence are broadly consistent with previously established overwhelming evidence of convergence in the African financial intermediary sector (Asongu, 2014c).

On the indirect comparison, it is important to note that comparing pre- and post-crisis financial globalisation dynamics associated with the empirical findings should be concentrated on differences/similarities in marginal, threshold and net effects. Unfortunately, for all comparative blocks in Tables 1-3 such comparison is not apparent or ‘not applicable’ because of

insignificant estimates in either pre- or post-crisis specifications[11]. Fortunately, when either sub-sample display significant marginal estimates, corresponding estimates from the full sample are also significant, for the most part. Hence, we take a minimalistic approach and compare either sub-sample with the full sample. Such is the basis for the indirect comparison. Within this framework, while the pre- and post-crisis comparative criterion discussed in the data section losses all theoretical/intuitive justification, the empirical validity of findings in the study remains relevant. Upon relaxing the sub-sampling assumptions, the two sub-samples can be renamed from: pre-crisis period to 'pre-crisis and crisis' period (hence PreCCP) and post-crisis period to 'post-crisis and crisis' period (hence PostCCP).

In spite of above change in sampling conception, the empirical validity of our findings remain sound because the main objective of the study does not change with underlying adjustments in the definition of sub-samples. This is essentially because the modified/adjusted periodicities are now compared exclusively with the full sample. For example: (i) when the full sample is compared with the 'pre-crisis and crisis' period, the effect of the post-crisis period can be inferred and (ii) in the same vein, when the full sample is compared with the 'post-crisis and crisis' period, the impact of the pre-crisis period can also be deducted.

In light of the above, corresponding indirect comparisons are relevant to money supply, banking system efficiency, financial system efficiency and financial size regressions. First, with respect to money supply, the negative marginal and positive net effects of the PostCCP sample are higher compared when to those of the full sample. By deduction, the contribution of the pre-crisis marginal (net) effect to that of the full sample is likely to be positive (negative). Second, the narrative on banking system efficiency is consistent with that on money supply. Third, from the perspective of financial system efficiency, negative marginal effects in the full sample and PreCCP are equal whereas the net effect of the latter sample is comparatively lower. The difference in net effects in spite of marginal effects of similar magnitude is traceable to asymmetric magnitudes in unconditional FDI estimates. By deduction, the marginal effect in the post-crisis period is likely to be negligible whereas the associated positive net effect is comparatively lower than that corresponding to the full sample. Fourth, with respect to financial size, the positive marginal and negative net effects of the PostCCP sample are higher compared to those of the full sample. By deduction, the contribution of the pre-crisis marginal (net) effect

[11] A comparative block consists of: the full sample, the pre-crisis sample and the post-crisis sample.

to that of the full sample is likely to be negative (positive). The above imply that the net effect from the: pre-crisis period are lower on money supply and banking system efficiency; post-crisis period is positive on financial system efficiency and pre-crisis period is positive on financial size .

4.2.3 More nexus with the literature

It is difficult to directly link findings of the this study to the engaged literature because to the best of our knowledge, there are currently no inquiries that have been positioned on pre- and post-crisis effects of financial globalisation on financial development in Africa. With this observation in mind, we discuss this section with emphasis on the: engaged literature in Section 2; positioning of findings in light of strands in the mainstream debate and Kose et al. (2011) and Henry (2007) hypothesis we have alluded to in the introduction.

Three main observations are note worthy in light of the engaged literature in Section 2. We have confirmed that: (i) financial globalisation affects development outcomes (Arieff et al., 2010; Motelle & Biekpe, 2015); (ii) there are significant changes in FDI between the pre- and post-crisis periods that ultimately affect development outcomes (Brambila-Macias & Massa, 2010); (iii) the crisis has affected financial development by means of credit contraction (Elu & Price, 2014). Accordingly, the main finding of Elu and Price (2014) broadly aligns with the results of this study because credit contraction is consistent with the higher post-crisis negative marginal effect observed in banking system efficiency regressions in Table 2. This implies a reduction on the ability of banks to transformed mobilised deposits into credit for economic agents.

The positioning of findings in this study with respect to ongoing debates depends on whether the comparative basis is on marginal or net effects. Hence, perspectives change depending on whether the impact of financial globalisation is observed from the prism of conditional or total effects. Based on total/net effects, the impacts on (i) financial depth and financial efficiency are consistent with the strand of literature on the positive role of financial globalisation whereas the effects on (ii) financial efficiency and size are aligned with the strand of literature on the negative role of financial globalisation. For brevity, lack of space and need for consistency with the scope of the inquiry, we invite the interested reader to refer to Kose et al. (2011) and Asongu and De Moor (2015) for more insights.

Before we conclude, it is worthwhile to highlight how the findings are relevant to the hypothesis stipulating that financial development benefits from financial globalisation are contingent on levels of financial globalisation. As apparent from our observations and interpretations, the results of this study show that while the hypothesis is verifiable, its validity also depends on financial development measurements as well as pre- and post-crisis dynamics.

5. Conclusion and further research

This study has assessed pre- and post-crisis dynamics of financial globalisation for financial development in Africa with data for the period 2004-2011. The underlying dynamics have been investigated from marginal, threshold and net effects. We have employed all financial dimensions identified by the Financial Development and Structure Database of the World Bank. These include: financial depth (overall money supply and financial system deposits), financial efficiency (at banking and financial system levels), financial activity (from banking and financial system perspectives) and financial size. Financial globalisation is measured in terms of Net Foreign Direct Investment inflows. The empirical evidence is based on Generalised Method of Moments (GMM) with forward orthogonal deviations.

The following findings have been established. First, whereas marginal effects from financial globalisation are positive on financial dynamics of activity and size, corresponding net effects (positive thresholds) are negative (within range). Second, while decreasing financial globalisation returns are apparent to financial dynamics of depth and efficiency, corresponding net effects (negative thresholds) are positive (not within range). Third, based on a direct comparison, financial development dynamics are more weakly stationary and strongly convergent in the pre-crisis era, compared to the post-crisis period. Fourth, from an indirect comparison, the net effect from the: pre-crisis period is lower on money supply and banking system efficiency; post-crisis period is positive on financial system efficiency and pre-crisis period is positive on financial size. Policy implications have been discussed. Future inquiries of the same scope would improve the extant literature by focusing on country-specific studies.

The study has contributed to the literature by uniting two streams of research. Accordingly, it has simultaneously focused on the: impact of financial globalisation on financial development and pre- and post-crisis dynamics of the investigated relationship.

Appendices

Appendix 1: Variable Definitions

Variables	Signs	Variable Definitions	Sources
Economic Financial Depth	M2	Money Supply (% of GDP)	World Bank (FDSD)
Financial System Depth	Fdgdp	Liquid Liabilities (% of GDP)	World Bank (FDSD)
Banking System Efficiency	BcBd	Bank credit on Bank deposits	World Bank (FDSD)
Financial System Efficiency	FcFd	Financial credit on Financial deposits	World Bank (FDSD)
Banking System Activity	Prcb	Private domestic credit from deposit banks (% of GDP)	World Bank (FDSD)
Financial System Activity	Prcbof	Private domestic credit from financial institutions (% of GDP)	World Bank (FDSD)
Financial Size	Dbacba	Deposit bank assets on Central bank assets plus Deposit bank assets	World Bank (FDSD)
Financial Globalisation	FDI	Foreign Direct Investment Net Inflows (% of GDP)	World Bank (WDI)
Economic Prosperity	GDPg	GDP Growth (annual %)	World Bank (WDI)
Inflation	Infl	Consumer Price Index (annual %)	World Bank (WDI)
Public Investment	PubIvt	Gross Public Investment (% of GDP)	World Bank (WDI)
Development Assistance	NODA	Total Net Official Development Assistance (% of GDP)	World Bank (WDI)
Trade openness	Trade	Imports plus Exports in commodities (% of GDP)	World Bank (WDI)

WDI: World Bank Development Indicators. FDSD: Financial Development and Structure Database.

Appendix 2: Summary Statistics

	Variables	Mean	S.D	Min.	Max.	Observations
Financial Development	Economic Financial Depth (M2)	34.279	22.294	6.363	112.83	377
	Financial System Depth (Fdgdp)	28.262	21.066	2.926	92.325	377
	Banking System Efficiency (BcBd)	68.118	27.725	14.804	171.85	402
	Financial System Efficiency (FcFd)	68.118	27.725	14.804	171.85	402
	Banking System Activity (Pcrb)	72.722	35.884	22.200	252.88	377
	Financial System Activity (Pcrbof)	21.571	24.154	0.010	149.77	379
	Financial Size (Dbacba)	78.073	20.255	4.032	99.949	399
Financial Globalization	FDI Net Inflows	5.268	7.472	-4.578	84.942	412
Control Variables	Economic Prosperity (GDPg)	4.996	4.556	-17.66	37.998	404
	Inflation	7.801	4.720	0	43.011	357
	Public Investment	74.778	1241.70	-8.974	24411	387
	Development Assistance	10.396	12.958	0.027	147.05	411
	Trade Openness (Trade)	80.861	32.935	24.968	186.15	392

S.D: Standard Deviation. Min: Minimum. Max: Maximum. M2: Money Supply. Fdgdp: Financial deposits(liquid liabilities). BcBd: Bank credit on Bank deposits. FcFd: Financial credit on Financial deposits. Pcrb: Private domestic credit from deposit banks. Pcrbof: Private domestic credit from deposit banks and other financial institutions. Dbacba: Deposit bank assets on central bank assets plus deposit bank assets. FDI: Foreign Direct Investment. GDPg: GDP growth.

Appendix 3: Correlation Analysis (Uniform sample size : 315)

Financial Development Dynamics							Other variables						
Financial Depth		**Financial Efficiency**		**Financial Activity**		**Fin. Size**							
M2	Fdgdp	BcBd	FcFd	Prcb	Pcrbof	Dbacba	FDIgdp	GDPg	Inflation	PubIvt	NODA	Trade	
1.000	0.973	0.074	0.087	0.818	0.634	0.385	0.023	-0.110	-0.079	0.048	-0.257	0.126	M2
	1.000	0.111	0.197	0.880	0.751	0.436	0.014	-0.095	-0.064	0.061	-0.283	0.141	Fdgdp
		1.000	0.865	0.489	0.491	0.243	-0.250	-0.046	-0.126	-0.213	-0.091	-0.156	Bcbd
			1.000	0.571	0.731	0.240	-0.233	-0.071	-0.086	-0.183	-0.142	-0.178	FcFd
				1.000	0.924	0.471	-0.084	-0.095	-0.084	-0.073	-0.304	0.094	Pcrb
					1.000	0.411	-0.102	-0.090	-0.069	-0.072	-0.293	0.021	Pcrbof
						1.000	-0.083	-0.029	-0.140	0.168	-0.385	0.229	Dbacba
							1.000	0.104	-0.046	0.154	0.008	0.282	FDIgdp
								1.000	-0.153	0.151	0.076	0.080	GDPg
									1.000	-0.082	0.006	-0.015	Inflation
										1.000	0.028	0.146	PubIvt
											1.000	-0.318	NODA
												1.000	Trade

M2: Money Supply. Fdgdp: Financial deposits(liquid liabilities). BcBd: Bank credit on bank deposits. FcFd: Financial credit on Financial deposits. Pcrb: Private domestic credit from deposit banks. Pcrbof: Private domestic credit from deposit banks and other financial institutions. Dbacba: Deposit bank assets on central bank assets plus deposit bank assets. FDI: Foreign Direct Investment. GDPg: GDP growth. Popg: Population growth. PubIvt: Public Investment. NODA: Net Official Development Assistance. Fin: Financial.

Appendix 4: Persistence of the dependent variables

	Financial Depth		Financial Efficiency		Financial Activity		Fin. Size
	M2	Fdgdp	BcBd	FcFd	Pcrd	Pcrdof	Dbacba
M2(-1)	0.9837						
Fdgdp(-1)		0.990					
BcBd(-1)			0.9438				
FcFd(-1)				0.9815			
Pcrd (-1)					0.9919		
Pcrdof(-1)						0.9945	
Dbacba(-1)							0.9330

M2: Money Supply. Fdgdp: Financial deposits(liquid liabilities). BcBd: Bank credit on bank deposits. FcFd: Financial credit on Financial deposits. Pcrb: Private domestic credit from deposit banks. Pcrbof: Private domestic credit from deposit banks and other financial institutions. Dbacba: Deposit bank assets on central bank assets plus deposit bank assets. M2(-1): Lagged value of Money Supply. Fin: Financial.

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