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Impact of Financial Integration on Growth in Developing, Transition, and Emerging Market Economies: Quest for Threshold Analysis

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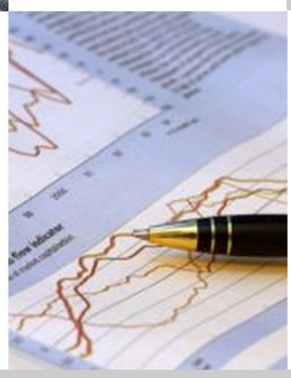

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Abstract

This research paper assesses the impact of financial integration proxied by de-facto measures, namely, various forms of capital flows, and de- jure measures, namely, capital account openness, on economic growth. Threshold regression (TAR) and logistic smooth transition regression (LSTR) methods are deployed to find the threshold estimates for each of these proxy variables for international financial integration. These nonlinear growth regressions are carried out for 185 countries over the period 1961-2015. The prime focus of this research paper is the threshold determination of the de jure measure of financial integration. The de jure measure of capital account openness issued for threshold analysis is the (1) Chinn-Ito Index (KAOPEN). We also employ the proxy variables for the de facto[1] measures of financial integration and this includes the following: (2) Net Inflows of Foreign Direct Investment (FDI as % of GDP), (3) Equity Foreign Portfolio Inflow (EFPI as % of GDP), (4) Cross-Border Lending e.g. Loans from Non-Resident Banks (CBL or NRBL as % of GDP), and (5) Net Financial Account (NFA as % of GDP). However, these results should be interpreted with caution given the problem of endogeneity due to reverse causality between de facto measures of financial integration and growth. The obtained results acquired for these IFI proxy variables are not uniform across all measures of financial integration utilized in this research, and country groups we focus here, to suggest that the effect of financial integration on growth is positive. There are distinctive thresholds for different income groups, some that are very interesting for policymaking purposes. The results that are of notable importance are related to the de jure measure of capital account openness. These results indicate that transition economies have the lowest threshold, followed by emerging economies, whereas developing economies have the highest threshold. However, while it is growth retarding above the threshold (growth enhancing below the threshold) for all income groups, for emerging markets, it is growth enhancing both below and above the threshold. The accuracy of these threshold estimates is validated predominantly via the bootstrapping technique and various other robustness checks.

[1] With respect to the de facto measures of financial integration, FDI tends to have a positive association with growth (both below and above the threshold) for all income groups, except for transition economies. The threshold level for EFPI approximates between 0 to 4% for all income groups, indicating positive growth effects below the threshold and negative growth effects above the threshold. For cross-border lending, growth effects are negative above the threshold, but inconclusive below for all income groups other than the emerging markets. Increase in cross-border lending, is surprisingly associated with negative growth effects for all income groups. The results for the relationship between the financial account and growth are inconclusive given their statistical insignificance, sensitivity to robustness checks and low number of observations. However, these results are impractical for usage in policymaking purposes due to the problem of endogeneity.

Introduction

Determination of the optimal level of financial integration has been at the forefront of policymaking objective for governments and policymakers in developing, transition, and emerging market economies[2]. Maximizing output growth with varying levels of financial integration is a conundrum that leaves economists, politicians, and policymakers alike, highly polarized. Maximizing output growth with varying levels of financial integration is a policy-level conundrum. For instance, what is the optimal level of (net) capital inflow that reaps the highest growth levels? Is there a tipping point for capital flows or capital account openness after which macroeconomic performance may be growth retarding? The existing literature examines various channels via which financial integration or various forms of capital flows may increase or diminish growth. However, the existing literature fails to sufficiently examine the tipping point for various measures of financial integration i.e. various forms of capital flows, including, for example, the de jure measure of capital account openness – the Chinn-Ito index.

This research paper assesses the impact of financial market liberalization by deploying the (de jure) capital account openness and various forms of capital flows on growth. The focus of this research paper centers around the threshold determination of the de jure measure of financial integration, this is proxied by the (1) Chinn-Ito Capital Account Openness Index. However, we also explore associations between various forms of capital flows as following proxies: (2) net inflows of foreign direct investment (% of GDP), (3) equity foreign portfolio inflow (% of GDP), (4) cross-border lending e.g. loans from non-resident banks (% of GDP), and (5) net financial account (% of GDP). These are the four de facto measures of financial integration. Threshold regression (TAR) and logistic smooth transition regression (LSTR) methods are utilized to find the threshold estimates for each of these variables. This non-linear growth regression is carried out for 185 countries over the period of 1961-2015. The accuracy of these threshold estimates is validated predominantly via the bootstrapping techniques.

The key research questions that this particular research paper seeks to address are the following:

1. What are the effects of different financial integration proxy variables on growth? Are such relationships linear or non-linear? How do they differ for developing, transition, and emerging economies?
2. If FI-growth relationships are non-linear, what is the threshold level for each of the FI proxy variables and how does it differ for developing, transition, and emerging economies?
3. Which FI proxy variables have multiple thresholds (more than 2 regimes)?
    a. *Do the coefficients signify a large difference from one regime to the other?*
    b. *Is there a positive and negative relationship, thereby indicating a kink?*
    c. *Is the tipping point applicable for all countries on a policy making level?*
4. What is the speed of transition from one regime to another i.e. is it a 'smooth' transition?

[2] The classifications for developing economies are determined based on the categorization made by the World Bank. The classifications for transition and emerging market economies are determined by the IMF.

The fundamental contribution[3] of this research paper stems around the usage of the de jure measure of capital account openness (as an IFI proxy variable) using the LSTR methodology. The research papers in the associated field of research tend to generally use de facto measures of financial integration and deploy the panel threshold model. However, the LSTR method has not been previously used in the FI-growth literature. Furthermore, this research paper also uses the test for nonlinearity developed by Gonzalez, Terasvirta, and van Dijk (2005). This is a notable flaw in the existing literature to not incorporate the test for nonlinearities; this test determines the validity of the result by testing whether or not the model is linear and by determining the number of regimes/thresholds, it may have.

The research paper is structured as follows; the first section illustrates the theoretical linkages of financial integration and growth. The second, third, and fourth sections include the methodology, the empirical framework, and the variable description. Section 5 illustrates the results and section 6 concludes. The appendix includes the explorative data analysis and the robustness checks.

Theoretical Framework

The theoretical disposition of the growth effects of international financial integration is highly polarized. For instance, some theories suggest that IFI induces increased risk sharing and thereby enhances specialization of production, production capacity, allocation of capital and growth (Obstfeld, 1994). The standard neoclassical growth model suggests that the international financial integration facilitates and eases the flow of capital, to capital-starved economies, accompanying positive growth effects in the process. Furthermore, the theory also suggests that IFI enhances the functionality of the domestic financial systems via the means of intensification of competition and the fundamental importation of international financial services; from the neoclassical theoretical viewpoint, this is growth enhancing. On the contrary, the theoretical assumptions that suggest that IFI may in fact be growth retarding argue that IFI, in the presence of pre-existing institutional distortions (e.g. weak institutions, institutional policies, under-developed legal and financial systems), may be growth retarding (Boyd and Smith, 1992). Therefore, this theory argues that financial integration is only growth enhancing in the presence of effective policymaking ordeals and sound institutional setup.

Baile et al. (2004) illustrate the three widely accepted benefits of financial integration: (1) risk sharing, (2) improved capital allocation and (3) higher growth. Financial integration offers extra opportunities to share the level of risks and to smooth out the consumption levels inter-temporally. Kalemli-Ozcan et al. (2001) show that risk sharing across differing regions does enhance specialization in production, which also improves productivity growth. Adjaoute and Danthine (2003) find that the growth rates of consumption in the Euro Area are less correlated than that with growth rates of GDP per capita; this means that risk sharing potential has not been tapped. Adam et al. (2002) support this view by rejecting the notion that consumption growth rates are unaffected by idiosyncratic variations in GDP growth rates. Therefore, financial integration can reap added benefits, however, even in the Euro Area, these potential additional gains have not been exploited fully. The removal of the barriers to trade, easing restrictions of capital control do induce improved allocation of

[3] The contribution that this research paper makes to the associated field of research is discussed extensively in the conclusion (refer to the conclusion).

capital. This will also induce investors to invest in productive and promising investment projects, which will stir competition and result in efficiency gains.

Smith (1994) and Obstfeld (1994) through their theoretical discussions illustrate that increased international risk sharing through international financial integration (resulting in integrated stock markets) will cause a shift in the portfolio demands from safe and low-risk investments to the high-risk and high return investments. This will accelerate productivity growth. International financial integration, in the presence of existing institutional and legal distortion can have a growth retarding effect. Boyd and Smith (1992) infer that international financial integration induces capital outflow from the capital-scarce countries to capital-abundant countries in countries that have relatively weaker financial and legal institutions.

Mody and Murshid (2005) question the inability of capital inflows in developing countries to transform into fruitful domestic investments. They question the assessment that shortage of capital is attributed to the lack of progress in developing countries; then why did inflow of capital not increase domestic investments in developing nations? They attribute the inability to foster domestic investment to: (1) the inability of developing countries to absorb external capital and smoothly transform to domestic investment, (2) government of developing nations diverted the capital inflow into reserve holdings, (3) foreign investors had a diversification motive and (4) capital inflow was offset by capital outflow as domestic residents invested abroad to diversify their portfolio. Bosworth and Collins (1999), in their study of capital flows to developing countries find that, on average, a dollar of external finance increases domestic investment by more than 50 cents. This corresponds to the findings made by Mody and Murshid (2005) and reiterates the effectiveness of financial integration in fostering fruitful domestic investments.

Literature Review

This section will look at the existing empirical literature in the associated field of research. The literature assessing international financial integration (or external financial liberalization) and growth predominantly addresses these key research questions: Is there a robust relationship between financial integration and growth? What are the channels via which international financial integration influences growth? Is there an optimal level (threshold) of financial integration? Is there the supposed ‘kink’ in the relationship that may suggest that up until a certain threshold it is growth enhancing, after which it is growth retarding? What are the institutional prerequisites for financial integration to effectively transcend to escalated growth levels? This chapter aims to pinpoint the threshold level and determine the effects of IFI below and above this threshold. This research paper deploys the logistic smooth transition regression (LSTR) and the threshold regression model (TAR) introduced by Hansen (1999). The logistic smooth transition regression (LSTR) model has not been previously used in the international financial integration and growth literature.

Financial Integration and Growth Literature

The existing empirical evidence assessing the relationship between IFI and growth provide conflicting and polarizing inferences. Financial globalization includes the integration of equity, bond, and money markets as well as for instance the direct ownership of foreign capital or FDI. Economists and policymakers see financial globalization as a stepping-stone for the middle-income emerging markets; for them to aspire to reach the levels of income and financial stability achieved by the developed industrial economies. Schularick and Steger

(2010) look at the effect of financial integration (globalization) on growth in two different eras. The first time period stretches from 1880 to 1913, consisting of 24 countries. The second time frame stretches from 1980 to 2002. They use the econometric methodology used by Edison et al. (2012) i.e. they run both a cross-sectional regression analysis as well as a GMM dynamic panel regression. They use a total of three econometric regression models and run it using both the historical dataset as well as the contemporary dataset. When they use the GMM panel estimation, they use 5-year averages in order to reduce the cyclicality of the data. It is also important to consider that the GMM estimation helps to address the bias of reverse causality i.e. increased growth rates causing an increase in the capital flow (something that the OLS regressions fail to consider). The results show that financial integration had a strong positive association with economic growth before 1915; however they imply that this is not the case when results are drawn using the more contemporary dataset. Moreover, opening up to international capital markets (using the contemporary dataset) do not lead to increased aggregate investment.

Bosworth and Collins (1999) investigate the effect of capital flows to developing economies and intensively examine the implication this has on savings and investments. They use a panel dataset that comprises of 58 developing countries over the time period 1978 to 1995. They use OLS and fixed effect estimation (allows the authors to account for relationships between the variables of interest over time) methods to deduce regression inferences. They use an instrumental variable, as they believe that domestic conditions are likely to influence capital inflows; this accounts for the endogeneity and the reverse causality problem. The authors conclude the following: (1) that a large proportion of capital inflows are used to finance the deficits the developing countries have in their current accounts; where majority of the resource transfer is for investment, as a result, consumption is compromised, (2) capital inflows are heavily concentrated to a small number of developing economies i.e. the emerging markets of Asia, (3) portfolio capital inflow does not have a significant effect on domestic investment and, (4) FDI often generates large increases in domestic savings and investments. Borensztein, Gregorio and Lee (1997) find that foreign capital inflows (predominantly in the form of FDI) result in increasing investment and growth levels when there is a certain threshold of human capital; in order for the economy and the domestic entrepreneurs to absorb the spillover of technical knowledge.

Edison, Levine, Ricci, and Slok (2002) examine the growth effects of IFI. They incorporate nonlinearities by assessing whether or not these growth effects are reliant on the level of financial development, institutional sophistication, economic development, and broad macroeconomic policies. They use three econometric methods to determine this relationship. They use the OLS regressions (one observation per country) over the period 1980-2000, the two-stage least squares instrumental variable estimator (cross-country), and generalized method of moments (GMM). For the two-stage least squares method, they use two sets of instrumental variables, an exogenous indicator that accounts for the legal tradition and the other that uses geography and its subsequent effect on economic institutions and policies. They use 57 countries. Their results indicate that IFI does not accelerate economic growth per se, even when controlling for economic, financial, institutional, and policy characteristics. However, the authors do state a positive association between real per capita GDP and IFI, but still underlines that it does not stimulate growth.

Mody and Murshid (2005) examine the relationship between capital flows and domestic investments using 60 developing economies over the time period 1979 to 1999. Using econometric regression analysis, the authors measure the effect of gross long-term capital

flows (measured as a percentage of GDP; key independent variable of interest) on domestic investment (measured as a percentage of GDP), with a host of macroeconomic control variables. They use the GMM estimation method. The authors find that each dollar of long-run flows raised domestic investment by 66 cents. The authors conclude that despite the theoretical notion suggesting that foreign capital inflow adds to the existing capital stock and raises the marginal returns, it also raises a significant argument stating that financial integration could simply mean agents optimize their portfolio by investing in developing countries; this plays no part in increasing domestic investment. The authors conclude that the surge in capital flows (predominantly through portfolio flows or through FDI) in developing countries during the 1990s did increase international reserves and led domestic residents to diversify by investing abroad, but inflow of capital, according to the authors attributed to the "diversification motive" rather than fulfilling unmet investment needs domestically. Moreover, they conclude that sounder policy environments enhanced the association between inflow and investments. According to Mody and Murshid (2005), some developing countries often have domestic returns that are lower than or equal to the world interest rate, and are often scapegoats to foreign diversification motives. Technological spillover is regarded as an essential motive for developing countries in opening up to capital inflows.

Threshold Literature

This subsection presents the empirical findings for those papers that deploy various threshold techniques. Both the developing and the developed countries have illustrated over the years that countries' characteristics are signals that precondition the impact of capital flows and dictate for instance elevated growth levels or increase the likelihood of banking, currency, or twin crisis. The threshold studies often tend to focus on the various forms of contingencies that may influence growth, positively or negatively. For instance, Brecher and Alejandro (1977) find that financial integration without the presence of trade openness could lead to misallocation of resources in the case when foreign capital flows into the non-competitive industries of the domestic economy. Arteta, Eichengreen, and Wyplosz (2001) on the other hand, do not find trade openness to be a contingent factor for the growth effects of financial integration.

Chen and Quang (2014) look at the effect of international financial integration on economic growth using threshold effects with an annual panel dataset consisting of 80 countries over the time period 1984 to 2007. They use the panel threshold regression framework developed by Hansen (1999). Furthermore, they use extension made by Caner and Hansen (2004) that allows for the endogeneity of regressors. The dependent variable of interest is the growth rate of real GDP per capita. A host of control variables is used; they use the level of initial income in order to control for conditional convergence. They predominantly use the de facto measure of financial integration. They use the following threshold variables: income level, trade openness, institutional quality, financial development, and macroeconomic policy. They use a multiple threshold model i.e. accounting for three potential breaks. They find that financial integration could be a facilitator of growth given countries satisfying specific threshold conditions concerning their institutional quality, level of financial depth and inflation rate. The criticism associated with this paper would be the fact that they have not heavily discussed the possibility of heteroskedasticity affecting the results.

Ding and Jinjarak (2012) use a panel dataset comprising of 130 countries over the period 1980-2003. They use the Hansen (1999) threshold estimation. They take into consideration four measures of capital flows: total capital inflow, total capital outflow, net capital outflow,

and capital flight. They find that the magnitude of capital flows is positively correlated with the income level of the economy. Using Hansen's threshold estimation, they introduce a three-stage threshold effect: for low-income countries (GDP per capita below US$3000), capital flight tends to increase as income level rises, but only after the income level rises above US$ 5000, capital flight declines with income.

Karadam and Ocal (2014) deploy panel smooth transition models to examine the effect of financial integration on growth for a panel dataset comprising of 82 countries over the period 1970-2010. The specialty of the PSTR models is that it allows endogenously determining and revealing for instance, the degree of institutional quality and/or the level of financial development asymmetries in the IFI-growth nexus. The dependent variable is the growth rate of GDP per capita and the key independent variable of interest is the de facto measure of financial integration, the ratio of the sum of total stocks of external assets and liabilities as a share of the GDP. The data is acquired from the database of Lane and Milesi-Feretti. For the entire dataset (all countries), it is found that countries with better developed financial systems, qualified institutions and stable macroeconomic policies seem to benefit the most from financial integration. These findings are consistent with that for emerging market economies, however, for industrial economies, higher levels of trade openness (with increasing financial integration) tend to decrease growth. Furthermore, for industrial countries, a budget deficit has a significantly higher negative growth effect with increasing integration compared to emerging economies.

Due to the fact that this research paper deploys FDI as a proxy measure for financial integration, it is only appropriate to find an existing research paper that uses the threshold technique for the FDI-growth nexus. The causal relationship between foreign direct investment (robust positive relationship) is not definitive, especially in the case of emerging market economies, it is in fact ambiguous (Gorg and Greenaway, 2004). The underlying view is that there is a positive association that is almost universally accepted, however, the contingency effects have not been explored enough to give a decisive inference. Azman-Saini, Law, and Ahmad (2010) look at the effect of FDI and growth using a threshold measure, where the threshold variable is financial development. They use data for 91 countries over the period 1975-2005. They surprisingly find that until the level of financial development reaches a certain threshold level, the effect of FDI on growth is nonexistent. The positive impact is realized only after the financial development threshold is reached.

Methodology

This research paper incorporates a dataset that includes 185 countries over the time-period 1961-2015. All the countries largely available are included in the dataset for cross-comparative purposes. In order to investigate the nonlinear effects of financial integration on growth, two distinctive statistical techniques are deployed. They are the (1) Threshold regression (TAR) or the Panel Threshold Regression model (PTR) and the (2) Logistic Smooth Transition Regression (LSTR) method. The technical mechanisms of these two statistical techniques are explained in the empirical framework section of this report. This research paper averages data over five-year periods[4] to smooth business cycle fluctuations.

[4] Five-year averages are deployed for this panel dataset to account for business cycle fluctuations. The panel dataset spans from 1961-2015, therefore, there are 10 periods of non-overlapping five-year averages.

There are five proxy variables selected to measure international financial integration, starting from the de jure financial integration measure, (1) Chinn-Ito Index (de jure measure of capital account openness), and de facto financial integration measures such as (2) Foreign Direct Investment (% of GDP), (3) Equity Foreign Portfolio Inflow (% of GDP), (4) Non-Resident Bank Loans (% of GDP), and (5) Financial Account (% of GDP). These are the key independent variables of interest. The dependent variable of interest is real GDP growth (Annual %), which is used to reflect macroeconomic performance. Furthermore, regression analysis is carried out for these specific country groups: (1) All Economies (this refers to the global economy i.e. all the economies in the dataset), (2) Developing Economies, (3) Transition Economies, and (4) Emerging Market Economies[5]. The classifications for developing economies are determined based on the categorization developed by the World Bank. The classifications for transition and emerging market economies are determined by the IMF. The reason for including all the economies in the dataset is to get an overview of the repercussions of financial integration on macroeconomic proceedings on an international level as well as for cross-comparative purposes.

The research paper focuses predominantly on developing, transition, and emerging market economies and therefore segregates the income group classification in this manner. The regression results assessing the relationship between IFI (proxy variables) are presented in tables 2, 3, 4, 5, and 6. Each table (segregated based on the IFI proxy variable) contains the OLS, TAR, and LSTR estimation results for all economies, developing economies, transition economies, and emerging market economies. Appendix 1 presents the explorative data analysis that looks at historical trends, scatter graphs (de facto and de jure proxies of financial integration and growth), and quadratic relationships. Appendix 2 illustrates the robustness checks carried out for all of the IFI proxy variables, de facto and de jure. These robustness checks include taking the 3-year non-overlapping averages, lagged financial integration proxy variables, post-1990 estimations, quadratic estimations (only for the de jure measure of financial integration), and bootstrapping exercise (only for the de jure measure of financial integration).

The focal point of this research paper will center around the de jure measure of capital account openness due to the novel contribution it makes to the associated field of research. While, the threshold regression (TAR and LSTR) results for the other IFI proxy variables are illustrated, due to issues associated with endogeneity (especially for FDI and growth), it would be erroneous to make policy deductions. Therefore, the threshold findings for the financial flows are merely there to gain an understanding of the association before progressing to our key independent variable of interest, which is the parameterized Chinn-Ito Index (KAOPEN).

Empirical Framework

Threshold Regression (TAR)

This section presents the theoretical intuition of the Threshold Regression (TAR)[6] and Logistic Smooth Transition Regression (LSTR) methodology using the practical exposition of the financial integration theory. The initial component of the empirical framework section

[5] Refer to appendix 3 for the detailed list of countries.

[6] The Threshold Regression (TAR) is the same as the Panel Threshold Regression (PTR). Chen and Quang (2014) in their paper on the impact of financial integration on economic growth (using threshold effects) use the PTR methodology.

will discuss the technical intuition of the TAR model. Hansen (1999) introduced the technical model. The purpose of this model is to provide an endogenous estimation of the threshold parameter in two distinctive regimes that is unaccounted for in the regular simple regression methodology. The gist of the TAR model suggests that there is a threshold level after which, growth for instance, may have a distinctively different (growth enhancing or growth retarding) growth effect. The special and distinctive feature in comparison to the LSTR model with the TAR model is that the TAR model suggests that there is an instantaneous change from one 'regime' to another. The empirical model is based on the assumption that international financial integration affects growth in a nonlinear way. The empirical formulation of the Threshold Regression (TAR) is as follows:

$$Real\ GDP\ Growth_{it} = \alpha_{it} + \phi_1' FI_{i,t} I(q_{it} \leq T) + \phi_2' FI_{i,t} I(q_{it} > T) + X_{it}'\theta + e_{it}$$

The subscript "*i*" refers to the individual countries and the subscript "*t*" refers to time period indexes. The dependent variable that accounts for macroeconomic performance is *Real GDP Growth*. The constant term is denoted by a_{it}. The specific threshold level is denoted by *T*. The threshold variable is defined by q_{it}. The indicator function is defined by $I(q_{it} \leq T)$ and $I(q_{it} > T)$; this indicator function equals 0 when q_{it} is less than or equal to the threshold parameter T and 1 otherwise. The error term, e_{it}, is assumed to be independent and identically distributed with a mean of 0 and variance of σ^2. It is important to understand that the observations are divided into two distinctive regimes depending on whether or not the threshold variable is greater than or less than the threshold, *T*. When the regime is below the threshold level, this is represented by the coefficient ϕ_1'; the regime after the threshold level is represented by the coefficient ϕ_2'. The financial integration variable is represented by $FI_{i,t}$; it is important to note that there are 5 proxy variables selected as a means to measure the impact of IFI on growth. The X_{it}' variable represents the set of control variables that may affect the output growth. The control variables have been selected based on those that are predominantly used in the growth and international financial integration literature.

Logistic Smooth Transition Regression (LSTR)

This research paper deploys the logistic smooth transition regression (LSTR)[7] model. The focal point of the empirical analysis is hinged on the LSTR model for the purposes of this particular paper. The growth and IFI literature tends to have and use the TAR model as a backdrop for threshold analysis; however, the LSTR model is significantly different, as the smooth transitional model does not have the instantaneous change (from one regime to another) as a feature of the model like the TAR model. The key explanatory variable of interest is the Financial Integration, which has five distinctive proxies: (1) net inflows of foreign direct investment (% of GDP), (2) equity foreign portfolio inflow (% of GDP), (3) cross-border lending e.g. loans from non-resident banks (% of GDP), (4) net financial account (% of GDP), and (5) de jure Chinn-Ito capital openness index.

This research paper averages data over five-year periods to smooth business cycle fluctuations. This allows for a more precise focus on the medium and the long-term effects of financial integration as it mitigates the business cycles and in some instances the problem of endogeneity, furthermore, it helps to avoid the problem of moving average dynamics.

[7] The paper by Gonzalez, Terasvirta, and van Dijk (2005) is the benchmark paper for the empirical methodology used in this research paper. The tests of nonlinearity are also applied from this particular research paper.

The logistic smooth transition regression (LSTR) model is estimated in the following manner:

$$\begin{cases} \Delta y_{it} = \alpha_{it} + \beta^{low} W^{low}(FI_{it} - c^*) + \beta^{high} W^{high}(FI_{it} - c^*) + \Theta X_{it} + \varepsilon_{it} \\ FI_{it} = \dfrac{IFI_{it}}{Y_{it}} \\ W^{low} = 1 - W^{high} \\ W^{high} = \dfrac{1}{1 + \exp[-\gamma^* \dfrac{(FI_{it} - c^*)}{\sigma}]} \end{cases}$$

The real GDP growth rate is denoted by Δy_{it}; α_{it} is the constant term or the intercept of the regression model; X_{it} is a vector of control variables; FI_{it} is the share of financial integration as a % of GDP, where IFI_{it} are the proxy variables of international financial integration expressed in constant 2005 US$ (with the exception of the de jure measure of capital account openness). The standard deviation of FI_{it} is denoted by σ; c^* is the threshold parameter; *t* is the time series index; *i* refers to the countries; ε_{it} is the error term.

There are two regressors via which the key explanatory variable(s)[8] of interest, FI_{it}, enters the LSTR model, and they are the following: (1) $W^{low}(FI_{it} - c^*)$ and (2) $W^{high}(FI_{it} - c^*)$; in this case β^{low} and β^{high} are coefficients of lower and higher regimes respectively. Therefore, this implies that when FI_{it} is above the threshold parameter c^*, the impact of FI_{it} on real GDP growth is closer to β^{high}. Similarly, when FI_{it} is below the threshold parameter c^*, the impact of FI_{it} on real GDP growth is closer to β^{low}. The weights are represented by W^{low} and W^{high}, where $W^{low} = 1 - W^{high}$. For instance, when FI_{it} is equal to c^*, then $W^{high} = W^{low}$. The speed of transition from the low regime to the high regime is represented by γ^*. Therefore, the higher the value of γ^*, the faster the speed of transition, and the lower the value of γ^*, the lower the speed of transition. It is important to comprehend effectively that when γ^* is high[9], the TAR is the more appropriate statistical technique. Whereas, when the γ^* is low, the LSTR is the more applicable methodology due to the fact that the speed of transition is low from one regime to the other, this means that there is a rather 'smooth' transition, hence, the usage of the LSTR technique. The regression results provide the estimations of the ordinary least squares (OLS) method, the TAR, and the LSTR model for cross-comparative purposes.

The LSTR model assumes that there are precisely two regimes i.e. low and high regimes; if for instance, there are more than two regimes then the model is said to be misspecified and the relationship is assumed linear (linear model), resultantly the parameters defined in this model are not identified. The specification test used to determine the existence of nonlinearities and the number of regimes is presented by Gonzalez, Terasvirta, and van Dijk (2005). This specification test therefore, estimates two p-values, (a) for nonlinearities (otherwise it is a straightforward linear model) and (b) for remaining nonlinearities – if there were to be remaining nonlinearities then this would imply that there are more than two

[8] There are five proxy variables chosen to measure international financial integration (IFI).

[9] The range for the γ^* (gamma value) is set between 1 and 15, where 1 indicates slow transition from one regime to another and therefore would suggest that the LSTR is the appropriate methodology for the regression model. Conversely, if the value of γ^* was to be 15, then this indicates fast transition from low to high regime and therefore this would indicate that the TAR methodology is more applicable for the purposes of this regression analysis.

regimes for instance. There is a fundamental flaw in the existing literature that calculates the threshold level but fails to account for the validity of the threshold or even test for the existence of nonlinearities, which is a fundamental prerequisite. In order to check the validity of the threshold measures, the bootstrapping exercise is conducted and presented via histograms. For further robustness purposes, various robustness techniques are deployed to validate and confirm the efficiency of the results.

Variable Description

Table 1 presents the descriptions of the dependent variable, the key independent variables of interest and the control variables. For these variables, the name of the variable is appropriately defined, a brief description of the variable is provided, and the source from which the data for this indicator was collected from is enlisted. Furthermore, it provides descriptive statistics of each of these aforementioned variables. The descriptive statistics include the mean value, the maximum value, the minimum value, the standard deviation, and the total number of observations for all the indicators, note that they are averaged over 5-years as this is the dataset used to acquire the final regression results. The key dependent variable, which takes into account macroeconomic performance, is real GDP growth. The key independent variables of interest (proxy variables for IFI) are broadly divided into two categories, the de jure and the de facto measures of IFI. The focus of this research paper is the threshold determination of the de jure measure of financial integration i.e. KAOPEN. The de facto measures include FDI (% of GDP), EFPI (% of GDP), Non-Resident Bank Loans (% of GDP) and Net Financial Account (% of GDP).

The Chinn-Ito index (denoted as KAOPEN) or the de jure measure of capital account openness measures the degree of financial openness. |The Chinn-Ito index ranges from +2.66 to -2.66, where +2.66 indicate a financial system that is fully liberalized and -2.66 indicates a fully regulated financial system. The index has a mean of zero. However, to simplify interpretation of the results this variable has been transformed in the following manner: *KAOPEN = (Chinn-Ito Index+2.66)*10*. This shows that the original version of the Chinn-Ito index is taken and every value is added by 2.66 (this is to take away all the negative values and it is multiplied with 10 to have an easier statistical reading. The transformed index (KAOPEN) has a minimum value of 7.71, a maximum value of 50.49, mean of 26.76, and a standard deviation of 16.18 for the observations in this particular dataset. However, it is important to note that the financial market is fully regulated when KAOPEN equals 0 and it is fully liberalized when KAOPEN equals 53.2. KAOPEN has a mean value that equals to 26.6. The original value or the original level of impact of a unit increase in the Chinn-Ito index can be found by dividing by 10 and then subtracting 2.66.

The standard control variables[10] for this research paper are the following: Initial GDP per Capita (constant 2005 US$), Investment (% of GDP), Inflation (%), Population Growth (%), Life Expectancy (Years), and School Enrolment (% Gross). The additional control variables included to avoid the problem of multicollinearity are the following: Savings (% of GDP) and Trade (% of GDP).

[10] The control variables were decided upon after looking at the most renowned papers in the growth literature, like the following authors: Islam (1995), Forbes (2000), Barro (2000), and Hausmann, Pritchett, and Rodrik (2004).

***Table 1:* Variable Description and Descriptive Statistics**								
Variable/Parameter	***Description of Variable***	***Data Source***	***Mean***	***Minimum***	***Maximum***	***Standard Deviation***	***Observations***	***Variable Type***
Real GDP Growth (Annual %)	*Real GDP growth is based on constant 2005 US$. This is the dependent variable of interest and is the proxy measure for macroeconomic performance.*	*World Bank Data*	*3.941*	*-21.66297*	*56.84105*	*4.255258*	*1755*	*Dependent Variable: Measuring Macroeconomic Performance*
Foreign Direct Investment, Net Inflows (% of GDP)	*Foreign direct investment as a share of GDP is based on constant 2005 US$.*	*World Bank Data*	*2.790*	*-21.95122*	*466.5622*	*12.25781*	*1851*	*IFI Proxy Variable: Key Independent Variable of Interest*
Equity Foreign Portfolio Inflows (% of GDP)	*Portfolio equity includes net inflows from equity securities and direct purchases of shares in local stock markets represented as a share of GDP.*	*Global Financial Development Database*	*0.708*	*-4.775941*	*316.4705*	*12.06782*	*1852*	*IFI Proxy Variable: Key Independent Variable of Interest*
Non-Resident Bank Loans (% of GDP)	*Non-resident bank loans as a share of GDP is based on constant 2005 US$. This accounts for cross-border lending.*	*International Financial Statistics, IMF*	*66.97*	*0*	*4170.101*	*317.0486*	*905*	*IFI Proxy Variable: Key Independent Variable of Interest*
Financial Account (% of GDP)	*Current Account Balance (% of GDP) is used as a proxy for FA i.e. FA=-CA.*	*International Financial Statistics, IMF*	*2.437*	*-190.95*	*44.3769*	*16.17711*	*523*	*IFI Proxy Variable: Key Independent Variable of Interest*
Capital Account Openness: Chinn-Ito Index	*The index has a mean of 0 and ranges from -2.66 to +2.66, where -2.66 represents full capital control and +2.66 represents complete liberalization. However, for the purposes of technical simplicity, it has been parameterized by addition of 2.66 and multiplying with 10 e.g. KAOPEN=(chinnito+2.66)*10*	*International Financial Statistics, IMF*	*26.76*	*7.71105*	*50.49669*	*15.05006*	*1439*	*IFI Proxy Variable: Key Independent Variable of Interest*
Total Investment (% of GDP)	*Total Investment as a share of GDP is accumulated total gross investment in constant 2005 US$.*	*International Financial Statistics, IMF*	*24.02*	*-3.636*	*176.0546*	*10.43442*	*1190*	*Control Variable*
Gross Domestic Savings (% of GDP)	*Total domestic savings as a share of GDP is used as an alternative to total investments (due to multicollinearity problem).*	*International Financial Statistics, IMF*	*16.96*	*-120.65*	*83.13451*	*17.64589*	*1625*	*Control Variable*
Initial GDP per Capita (constant 2005 US$)	*Initial GDP per capita refers to the initial level of GDP per capita of every 5-year period (or 3-year period).*	*International Financial Statistics, IMF*	*9505.1*	*96.768*	*145456.3*	*15721.22*	*1762*	*Control Variable*
Inflation, consumer prices (Annual %)	*Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.*	*International Financial Statistics, IMF*	*27.81*	*-4.2534*	*6517.11*	*220.3279*	*1462*	*Control Variable*
Population growth (Annual %)	*Population growth (annual %) is the exponential rate of growth of midyear population.*	*United National Statistics Data*	*1.812*	*-4.104643*	*16.27661*	*1.595406*	*2325*	*Control Variable*
Life Expectancy, Total (Years)	*Total average life expectancy in years.*	*World Bank Data*	*63.84*	*22.95472*	*83.57805*	*11.40845*	*2176*	*Control Variable*
School Enrollment, Secondary (% Gross)	*Secondary over primary school enrolment is a significantly better reflection of educational attainment.*	*World Bank Data*	*61.45*	*0.24349*	*164.5681*	*34.15557*	*1477*	*Control Variable*
Trade (% of GDP)	*Trade is the sum of exports and imports of goods and services measured as a share of GDP.*	*IMF Data*	*79.28*	*0.5659665*	*447.8819*	*50.54554*	*1690*	*Control Variable*
Net Foreign Assets (% of GDP)	*Net foreign assets as a share of GDP is used as a control variable to take into account the de facto influence of IFI.*	*Lane-Milessi Ferretti (2006)*	*-0.301*	*-24.54762*	*14.51919*	*1.381884*	*1473*	*Control Variable*

Results

This section presents the regression results using the ordinary least squares (OLS) method, the instantaneous threshold regression (TAR), and the logistic smooth transition regression (LSTR) method. Regression analysis is carried out initially for all countries, and then specifically tailored for developing, transition and emerging market economies. In order to account for business cycle fluctuations, 5-year non-overlapping averages have been taken for all the variables of interest used in the regression analysis. The de facto measures of financial integration are presented as stylized facts. Therefore, while we look at the association of these financial flows with growth (only exploring at the level of endogeneity[11]), we do not conclude to policy-making references. The de jure measure of financial integration (capital account openness) is the lynchpin of this research paper as this is the only paper that uses the de jure measure of financial integration to determine the threshold (even though the same regression estimation methods are deployed for all the FI proxy variables, de facto and de jure).

Each table presents the results related to a specific measure of financial integration. Each table also contains regression findings for various country groups, which includes that of all economies in the dataset, then the developing economies, followed by the transition, and finally the emerging market economies. For each of these country groups, three types of estimation methods are deployed (aforementioned in this section) and they include the OLS, TAR, and LSTR methods. Table 2 reports our key set of the results, focusing on the relationship between the de jure measure of financial integration, proxied by Chinn-Ito index, and growth. Tables 3, 4, 5, and 6 present the results related to each de facto measure of financial integration.

Tables 2, 3, 4, 5, and 6 have the initial set of control variables followed by the proxy IFI variable denoted as KAOPEN, FDI, EFPI, CBL, and FA, where KAOPEN refers to the capital account openness index, CBL refers to cross-border lending (non-resident bank loans as a % of GDP), and FA refers to the financial account. Following the IFI proxy variable, the coefficients for the regime below the threshold and above the threshold are reported e.g. $KAOPEN - T\ if\ KAOPEN < T$ and $KAOPEN - T\ if\ KAOPEN > T$ (example taken from table 2) respectively. Note that these are the coefficients for the TAR model. This is followed by the coefficients of the LSTR model for the 'low' regime and the 'high' regime[12], this is exemplified by the following denotation on the table: $W^{low}(KAOPEN - c^*)$ and $W^{high}(KAOPEN - c^*)$. *TAR (T)* or *LSTR (c*)* indicate the threshold level of the TAR model and LSTR model. The LSTR parameter, gamma, indicates the speed of transition from the 'low' regime to the 'high' regime (speed of transition from one regime to the other). This is followed by the tests of Gonzalez, Terasvirta, and van Djik (2005) that tests whether or not the regression model is linear or nonlinear[13] which is denoted by the following notations in the table '*LM Test (GTD 2005) H0: Linear Model*' and '*p-value nonlinearity*'. The second test of Gonzalez, Terasvirta, and van Djik (2005) tests for

[11] The endogeneity problem exists for all forms of de facto measures of financial integration.

[12] Refer to the empirical framework section for conceptual clarification of the LSTR model and its mechanisms.

[13] The null hypothesis indicates that the model is linear and therefore this would mean the LSTR model is invalid for analytical purposes. The alternative hypothesis states that the model is nonlinear and therefore the LSTR model may be more appropriate.

any remaining nonlinearities[14] (denoted by '*LM Test for remaining nonlinearities*' and '*p-value for remaining nonlinearity*' on each of the tables).

Threshold Regression Findings: Capital Account Openness (Chinn-Ito Index[15])

The de jure measure of financial integration (de jure measure of capital account openness) is the key independent variable of interest of this research paper. The contribution of this research papers stems from the threshold determination of capital account openness index. The OLS, TAR, and the LSTR estimation methods are deployed for all the countries the dataset, for developing economies, transition economies, and emerging market economies separately. These findings are further validated by various robustness checks carried out in the appendix. The robustness checks (also illustrated for the de facto measures of financial integration) presented in appendix 2, include the (1) 3-Year Non-Overlapping Averages; (2) Lagged IFI Proxy Variables; (3) Post-1990 Estimations; these findings for KAOPEN are illustrated in tables 11, 16 and 21 respectively. Furthermore, the (4) Quadratic Estimations[16]; and (5) Bootstrapping exercises are carried out just for KAOPEN as robustness checks; they are not carried out for the other de facto measures of financial integration. The findings that are statistically insignificant in table 2, we will refer to the robustness checks to see if anything concrete can be found for policy deduction purposes.

Table 2 illustrates the relationship between capital account openness (KAOPEN) and growth. For all economies, the estimated OLS coefficient of KAOPEN is statistically insignificant for all significance levels. The threshold level of the TAR model is 21 (this is just below the mean and therefore indicates that the financial system is more regulated than it is liberalized). The coefficients for KAOPEN below and above this threshold level are 0.067 (statistically significant at 5%) and -0.037 (statistically significant at 1%). This indicates that it is growth enhancing when the financial market is partially liberalized, however, it is growth retarding after this threshold level as the financial market becomes more open. Note that this is the result of particular interest for all the countries in the dataset or the global economy on the whole. The high gamma value (equals 11) shown in the LSTR column indicates that the TAR model is better suited for analysis due to the high speed of transition from one regime to the other. Therefore, the inferences drawn from the LSTR column are not taken into consideration for analytical purposes. However, it must be noted that the coefficients of interest (coefficients below and above thresholds and coefficients for 'low' and 'high' regime) in the TAR and LSTR column are similar. The numbers of observations in the regression model are relatively high and the R-squared value has a respectably high value. Furthermore, the test for linearity suggests that the model is nonlinear and the test for measuring any remaining nonlinearities suggest that there is a single threshold (two regimes). These tests are found in the LSTR column.

[14] The null hypothesis for this test states is that there is a single threshold with two regimes. The alternative hypothesis for this test states that there are more than two regimes or there are multiple thresholds.

[15] This is the parameterized version of the Chinn-Ito index developed by Chinn and Ito (2006). Refer to the variable description to understand how the index has been parameterized.

[16] This is presented in tables 22, 23, 24, and 25 for all the countries in the dataset, the developing, transition, and emerging economies respectively. Note that this is presented in "Appendix 2: Robustness Checks" under the sub-heading "Robustness Test 4: Quadratic Estimations".

For developing and transition economies, the coefficients of interest are mostly statistically insignificant. Therefore, this is not dissected further for analysis. Only for transition economies, for the LSTR column, the low regime has a coefficient that equals 0.172 (statistically significant at 10%) where the threshold level is 21. Furthermore, it can be seen that the model is nonlinear and there are no more than two regimes. A reference should be made in the robustness checks illustrated in the appendix to test to see if there are any policymaking deductions that can be taken onboard. In table 16, the regression analysis carried out using lagged values for capital account openness shows a statistically significant (at 1%) finding for developing economies. Due to the fact that the gamma value is so high, the LSTR is not taken into consideration. The threshold level of the TAR is 47, this means that the financial markets are highly liberalized. The coefficient below this threshold is insignificant, but the threshold above this value is -0.278 (statistically significant at 1% significance levels). Furthermore, the linearity test suggests that the model is nonlinear and that there are no more than two regimes. For developing economies, the quadratic estimations in table 23[17] show that the threshold level is at 25.25. This result is consistent with the quadratic illustration[18] of KAOPEN, which illustrates a threshold level of approximately 32. For transition economies, the threshold levels for TAR and LSTR are 22 and 21 respectively. While, the coefficient for the 'low' regime in the LSTR column is 0.172 and statistically significant at 10%, the coefficients for the TAR column are both insignificant above and below the threshold. Furthermore, unfortunately other than one finding, none of the robustness checks provide any empirically or statistically significant findings. This finding from the robustness checks section shows the threshold level to be 10; below this threshold the coefficient (0.78 and statistically significant at 10|%) is growth enhancing but above this threshold the coefficient is statistically insignificant, therefore inconclusive. Reverting to the graphical illustrations also is not a solution, because, the threshold level seems to be very low, but, the maxima is not definitive.

For emerging market economies, the OLS estimated coefficient is 0.054. This suggests that for a unit increase in KAOPEN, growth increases by 0.054%. This is shown in regression model 10 of table 2. The LSTR column (regression model 12) shows that the coefficients for the 'low' and 'high' regimes are 0.236 (statistically significant at 1%) and 0.042 (statistically significant at 1%). The threshold level of the LSTR is 14. This suggests that when the financial markets of emerging market economies are more regulated the economy grows at 0.236%. While it is not growth retarding above this threshold, there is a significant fall in the average growth rate down to 0.042%. The LSTR column shows that the model is linear (null hypothesis rejected at the with 90% confidence) and that the regression model has a single threshold (fail to reject the null hypothesis). The gamma parameter equals 15, which suggests that the TAR is a significantly better measure than the LSTR due to the high transition speed from one regime to the other. The threshold level of the TAR is 15. The coefficients below and above this threshold are 0.244 (statistically significant at 1%) and 0.041 (statistically significant at 5%). The results of the coefficients are similar to that acquired by the LSTR. These coefficients reiterate the fact that for emerging market economies, the economy tends to grow faster when there is more regulation rather than when it is more liberalized.

[17] Refer to appendix 2 under the sub-section "Robustness Test 4: Quadratic Estimations".
[18] Refer to figure 50 in appendix 1 under the sub-section "Explorative Data Analysis 3: Quadratic Relationships".

***Table 2:* De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth** **Time Period: 1961-2015 (5-year non-overlapping averages)** **Income Groups: Developing, Transition, and Emerging Market Economies** **Estimation Methods: Ordinary Least Squares (OLS), TAR (Threshold Regression), and LSTR (Logistic Smooth Transition Regression)**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.81e-05* (1.41e-05)*	*-2.51e-05* (1.42e-05)*	*-2.51e-05* (1.42e-05)*	*-7.17e-05 (7.62e-05)*	*-7.47e-05 (7.64e-05)*	*-7.48e-05 (7.65e-05)*	*-0.00038*** (0.000102)*	*-0.0003*** (0.000102)*	*-0.00032** (0.000101)*	*-0.00167** (8.22e-05)*	*-0.000148* (8.04e-05)*	*-0.000149* (8.05e-05)*
Invest to GDP	*0.0218 (0.0135)*	*0.0214 (0.0133)*	*0.0214 (0.0133)*	*0.0254* (0.0142)*	*0.0257* (0.0140)*	*0.0257* (0.0140)*	*0.0358 (0.0272)*	*0.0381 (0.0276)*	*0.0378 (0.0274)*	*0.0444 (0.0394)*	*0.0415 (0.0393)*	*0.0417 (0.0392)*
NFA to GDP	*0.572** (0.222)*	*0.585*** (0.221)*	*0.585*** (0.221)*	*0.607** (0.285)*	*0.616** (0.281)*	*0.616** (0.281)*	*1.058 (0.884)*	*0.732 (0.852)*	*0.752 (0.856)*	*2.738** (1.116)*	*2.842** (1.092)*	*2.842** (1.093)*
FDI	*0.289*** (0.112)*	*0.294*** (0.112)*	*0.294*** (0.112)*	*0.397*** (0.130)*	*0.400*** (0.130)*	*0.400*** (0.130)*	*0.0611 (0.0945)*	*0.0582 (0.0914)*	*0.0575 (0.0910)*	*0.135 (0.101)*	*0.146 (0.0982)*	*0.146 (0.0985)*
Population Growth	*0.496*** (0.145)*	*0.512*** (0.146)*	*0.512*** (0.146)*	*0.672*** (0.189)*	*0.678*** (0.190)*	*0.678*** (0.190)*	*0.792** (0.391)*	*0.795** (0.387)*	*0.795** (0.386)*	*0.209 (0.300)*	*0.196 (0.292)*	*0.196 (0.293)*
Inflation	*-0.0187** (0.000167)*	*-0.0183*** (0.000142)*	*-0.0183*** (0.000143)*	*-0.0177*** (0.000140)*	*-0.00175*** (0.000128)*	*-0.00175*** (0.000128)*	*-0.0266*** (0.00933)*	*-0.0245*** (0.00867)*	*-0.0245*** (0.00855)*	*-0.00252*** (0.000555)*	*-0.00215** (0.000566)*	*-0.00216** (0.000566)*
Literacy Rate	*-0.0122* (0.00741)*	*-0.0122* (0.00739)*	*-0.0122* (0.00739)*	*-0.0113 (0.00920)*	*-0.0109 (0.00919)*	*-0.0108 (0.00919)*	*-0.0175 (0.0158)*	*-0.0153 (0.0157)*	*-0.0156 (0.0155)*	*-0.0351*** (0.0118)*	*-0.0379*** (0.0117)*	*-0.0379*** (0.0117)*
Trade to GDP	*0.00361 (0.00663)*	*0.00240 (0.00655)*	*0.00238 (0.00655)*	*0.0129 (0.00996)*	*0.0117 (0.00988)*	*0.0117 (0.00988)*	*0.0104 (0.0195)*	*0.0142 (0.0196)*	*0.0142 (0.0196)*	*-0.00316 (0.0114)*	*-0.00362 (0.0114)*	*-0.00356 (0.0113)*
$KAOP$	*-0.0117 (0.00944)*			*-0.00187 (0.0121)*			*0.0295 (0.0260)*			*0.0542*** (0.0143)*		
$KAOP - T \; if \; KAOP < T$		*0.0673** (0.0285)*			*0.0424 (0.0320)*			*0.153 (0.0942)*			*0.244*** (0.0780)*	
$KAOP - T \; if \; KAOP > T$		*-0.0366*** (0.0132)*			*-0.0219 (0.0179)*			*-0.00601 (0.0369)*			*0.0407** (0.0158)*	
$W^{low}(KAOP - c^*)$			*0.0653** (0.0280)*			*0.0408 (0.0312)*			*0.172* (0.103)*			*0.236*** (0.0768)*
$W^{high}(KAOP - c^*)$			*-0.0357*** (0.0130)*			*-0.0212 (0.0175)*			*-0.00499 (0.0354)*			*0.0418*** (0.0156)*
Constant	*3.380*** (0.542)*	*3.610*** (0.570)*	*3.587*** (0.569)*	*2.121*** (0.649)*	*2.415*** (0.759)*	*2.396*** (0.757)*	*5.896*** (1.447)*	*6.763*** (1.346)*	*6.778*** (1.340)*	*5.088*** (1.290)*	*6.403*** (1.353)*	*6.366*** (1.353)*
Observations	*914*	*914*	*914*	*615*	*615*	*615*	*99*	*99*	*99*	*136*	*136*	*136*
R^2	*0.244*	*0.249*	*0.249*	*0.308*	*0.310*	*0.310*	*0.373*	*0.387*	*0.389*	*0.423*	*0.442*	*0.441*
TAR (T) or LSTR (c)*		*21*	*22*		*22*	*23*		*22*	*21*		*15*	*14*
LSTR parameter (γ)*			*11*			*9*			*14*			*15*
LM Test (GTD 2005) H0: Linear Model			*41.46*			*23.83*			*20.49*			*19.55*
p-value nonlinearity			*0.00131*			*0.04161*			*0.0889*			*0.09359*
LM Test for remaining nonlinearities			*13.22*			*5.446*			*13.88*			*11.21*
p-value remaining nonlinearity			*0.778*			*0.998*			*0.459*			*0.598*

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*

Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

Stylized Factual Findings

This section will look at the stylized factual findings for the relationship between financial integration and growth using the de facto measures of financial integration. These findings do not formulate to be the center piece or the focal point of this research paper due to the problem of endogeneity and reverse causality. It is important to recognize that it is challenging to address the endogeneity problem in the context of the TAR and LSTR models. There have been recent developments that have attempted to address this issue (Kourtellos et al. 2015)[19], requiring the use of structural threshold modeling, but this paper has not explored this opportunity as of yet, leaving it to subject for future research. Furthermore, there have been research papers that have already addressed these endogeneity issues. Nonetheless, the association between the de facto measures of financial integration on growth are investigated and presented in tables 3, 4, 5, and 6. Therefore, the results reported here should be interpreted only from the point of association of the de facto FI measures with growth but do not deduce policy making inferences due to possible endogeneity bias.

Stylized Factual Analysis 1: FDI (% of GDP)

Table 3 illustrates the econometric relationship between Foreign Direct Investment[20] (% of GDP) and growth. Before commencing with the analysis of the threshold regressions, it must be noted that there is an existing literature that has underlined the problem of endogeneity (reverse causality as well) in the FDI-growth literature. Furthermore, there have been research papers that have addressed these endogeneity issues. For all economies, regression model 1 looks at the linear OLS estimation results. This indicates that if FDI increases by 1% then growth increases by 0.121% and this is statistically significant at the 1%, 5%, and 10% significance levels. The TAR model indicates that the threshold level of FDI is at 38% of GDP. Below this threshold level, 1% increase in FDI increases growth by 0.0828% and above this threshold level, 1% increase in FDI increases growth by 1.583%. Both these coefficients are statistically significant at the 1% significance level. For the LSTR model, the threshold FDI level is at 55% of GDP. The 'low' regime has a coefficient of 0.140, the 'high' regime has a coefficient of 16.16, and they are both statistically significant at the 1% significance level. The reason why the growth rate may increase so drastically after this threshold level is that there are only a handful of observations above this particular threshold, which are associated with excessively high growth rates. The parameter, gamma (gamma equals to one), indicates a very low transition speed from one regime to the other and therefore the LSTR model is more appropriate for analytical purposes than the TAR model given that the linear model test shows that we reject the null hypothesis. However, the test for remaining nonlinearities shows that we must reject the null hypothesis and this indicates there are more than two regimes and therefore this is a multiple threshold model, which is not taken into consideration by the LSTR[21] model. This particular report only accounts for single thresholds (no more than two regimes). Furthermore, there are 885 observations and

[19] Kourtellos, Stengos, and Tan (2015) Structural Threshold Regression, Econometric Theory, 1-34.
[20] Note that the data acquired for the FDI variable is for net inflows.
[21] The LSTR model is only applicable for regression models that have two regimes and therefore has a single threshold.

the R-squared value is above 42% (for regression models 1, 2, and 3) that means the selection of the control variables is well suited for the model.

For developing economies, the OLS estimation indicates that a 1% increase in FDI results in a 0.242% increase in growth. This is statistically significant at the 1% significance level. This is also higher than the coefficient of FDI on growth for all countries. The FDI threshold level of the TAR model is 25% of GDP. The coefficients below the threshold and above the threshold are 0.165 and 0.979 respectively and they are both statistically significant at the 1% significance level. The threshold level for the LSTR model is at 24% of GDP. The coefficients in the 'low' and 'high' regimes are 0.195 and 0.942 respectively. The fact that the gamma value that equals to one indicates that the LSTR is more suitable than the TAR model. The null hypothesis of for the test of linearity is rejected, however, we also reject the null hypothesis for remaining nonlinearities (this suggests there are multiple thresholds). However, the LSTR model shows that FDI causes a higher increase in growth above the threshold than below it (even though in both cases it is growth enhancing for developing countries). For transition economies, the OLS estimation for the FDI coefficient is statistically insignificant. The TAR model indicates a threshold level for FDI that equals 16% of GDP. The coefficients below the threshold and above the threshold are 0.419 (statistically significant at 5% significance levels) and -2.603 (statistically significant at 1% significance level). However, the gamma value (equals one) indicates that the LSTR is more appropriate than the TAR model for analytical purposes. The threshold level of the LSTR model is 19%. The null hypothesis for the test of nonlinearity is rejected and we fail to reject the test for remaining nonlinearities. The coefficients of the 'low' and 'high' regime for the LSTR model are 0.018 (statistically insignificant) and -5.729 (statistically significant at the 1% significance level). However, the only flaw with this particular regression model is the number of observations (101 observations) there are for transition economies (note that there are 5-year non-overlapping averages).

For emerging market economies, the OLS estimation of the FDI coefficient is statistically insignificant. The threshold level of the TAR model is 8% of GDP. The coefficients above the threshold and below the threshold are 0.462 (statistically significant at 1%) and -0.348 (statistically significant at 1%). However, the gamma value equaling one indicates the LSTR model is more appropriate. The threshold level of the LSTR model is 9% of GDP. The coefficients of the 'low' and 'high' regime are 0.461 and -0.347. This indicates that below the threshold value of 9% of GDP the economy grows at 0.461% and above this threshold, the economy shrinks at 0.347% (for 1% increase in FDI inflow). The results are further justified given that the null hypothesis for the test of nonlinearity is rejected and furthermore we fail to reject the null hypothesis of the test for remaining nonlinearities (indicating a single threshold). However, albeit the numbers of observations are larger than that for transition economies, the number of observations is still fairly small (only 126 observations). This is the only limitation of this particular regression model.

Stylized Factual Analysis 2: EFPI (% of GDP)

Table 4 depicts the econometric relationship between EFPI and growth for all countries in the dataset, for developing economies, transition economies, and emerging market economies. The OLS, TAR, and LSTR estimation methods are

deployed for each country group. For all economies, referring to regression model 1 or the OLS estimation column, 1% increase in EFPI results in a reduction in growth by 0.015% (statistically significant at 1%). Quick reference to the speed of transition parameter, gamma (equates to 15), indicates that the LSTR model is not appropriate for analysis. Furthermore, it confirms that the model is nonlinear (result significant at 5% significance level) and that there are no more than two regimes (single threshold). The threshold level for the TAR model is 0% of GDP. The coefficients above and below this threshold are 0.823 (statistically significant at 5%) and -0.016 (statistically significant at 1%). This means that if there is EFPI inflow then this reduces growth by 0.016% and if there is outflow of EFPI (domestic investment in foreign securities) then growth increases by 0.823%. Furthermore, the deductions are strengthened given the high number of observations for this sample group as well as the fact that these results are robust.

For developing economies, the coefficient of EFPI is statistically insignificant under the OLS estimation method. The gamma value (equates to one) indicates the TAR model is not appropriate for analysis. Therefore, attention is shifted to the LSTR estimation method (refer to regression model 6 in table 4). The threshold level is 0%. The coefficients of the 'low' and 'high' regime are 3.576 (statistically significant at 5%) and 0.0361 (statistically insignificant). Therefore, we can conclude that when domestic investors in developing countries invest in foreign securities, it is growth enhancing. The null hypothesis for the test of nonlinearity is rejected at the 10% significance level. We fail to reject the null hypothesis of any remaining nonlinearities at all significance levels. It can be inferred that we are 90% confident about the deductions induced from this regression model. For transition economies, the coefficient of EFPI under OLS estimation is statistically insignificant. The TAR model is not used for analysis, as the gamma value equals one. The threshold level of the LSTR model is at 2%. The coefficients of the 'low' and 'high' regime are 1.07 (statistically insignificant) and 44.77 (statistically significant at 10%). However, the even though the linearity test can be rejected at the 10% significance level, the test for remaining nonlinearities suggest that there are multiple thresholds for the case of transition economies.

For emerging market economies, under the OLS estimation, increase in EFPI by 1% increases growth by 0.978%. This is statistically significant at the 5% significance level. The threshold level of the TAR model is equal to zero. The coefficients below and above the threshold are 2.397 (statistically significant at 1%) and 0.791 (statistically significant at 10%). This indicates that it is beneficial to invest in foreign equities rather than have foreigners investing in domestic securities. However, the LSTR technique is more applicable for policy oriented issues given that the value of gamma equals one. The coefficient of the high regime is statistically insignificant but the coefficient of the low regime is 3.125 and it is statistically significant at 1%. This complies with the results acquired for the previous country groups and reiterates the fact that it is beneficial for the home country if domestic investors invest in foreign securities. However, we cannot say if it is growth retarding if foreign investors invest in domestic securities as the result is statistically insignificant. The linearity test shows that the model is linear, however, the test for remaining nonlinearities shows that there are multiple thresholds i.e. more than two regimes (statistically significant at 5%).

Stylized Factual Analysis 3: Non-Resident Bank Loans (% of GDP)

Table 5 looks at the relationship between non-resident bank loans (cross-border lending denoted as CBL) and growth. For all economies, under the OLS estimator, the coefficient of CBL indicates that it is growth retarding and it is statistically significant at 5%. This means that if CBL increases by 1% growth reduces by 0.04%. The threshold level of CBL for the TAR model is 1% of GDP. The coefficients below and above the threshold are 3.664 (statistically insignificant) and -0.416 (statistically significant at 5%). The gamma value from the LSTR model indicates that the speed of transition from one regime to the other is relatively high and therefore the TAR model is more appropriate for analytical and/or policy-oriented purposes than the LSTR model. The tests of the LSTR model also confirm that the model is nonlinear and that there are no more than two regimes (single threshold).

For developing economies, under the OLS estimation method, the coefficient of the CBL is -0.012. This indicates that a unit increase in CBL causes a reduction in growth by 0.012%. The threshold level for TAR is 1%. The coefficient below is statistically insignificant but the coefficient above is -0.013 and statistically significant at 10%. The gamma parameter of LSTR is 15; therefore, it is certain that TAR is more appropriate than the LSTR. Furthermore, the tests of the LSTR model also confirm that the model is nonlinear and that there are no more than two regimes (single threshold). Hence, for developing economies, it cannot be said that the impact of cross-border lending abroad as the coefficient is statistically insignificant; however, borrowing money from abroad is growth retarding.

For transition economies, the CBL coefficient is -0.039 under the OLS estimation, indicating a decline in growth with increased non-resident bank loans. The threshold level of the TAR is 1%. The coefficients below and above this threshold are 8.394 (statistically insignificant) and -0.475 (statistically significant at 5%). The gamma parameter in the LSTR column is 15, which indicates the TAR model is more applicable than the LSTR. Furthermore, tests of LSTR model also confirm that the model is nonlinear and there is a single threshold. For emerging market economies, the OLS estimated coefficient of CBL is statistically insignificant. The TAR column in this case should not be considered for analytical purposes because the value of gamma equals to two; therefore, the LSTR should be the focal point of analysis. The results are in direct contrast to the results acquired for developing, transition and all economies. For emerging markets, the LSTR threshold level is 52% (this is also drastically different from the threshold levels for other country groups). The coefficients of the ‘low’ and ‘high’ regimes are -0.045 (statistically significant at 10%) and 4.212 (statistically significant at 1%). This suggests that above this threshold it is in fact growth enhancing; this contradicts the results we acquired for developing and transition economies. However, while it can be concluded that the model is nonlinear, it is also confirmed with 99% confidence that there are more than two regimes (multiple threshold). Furthermore, another limitation may be the lack of observations.

Stylized Factual Analysis 4: Financial Account (% of GDP)

Table 6 looks at the relationship between the financial account (FA) and growth. For this particular analysis, the theoretical assumption taken is that financial account is

equal to the negative value of the current account i.e. *FA=-CA*. When FA increases by 1%, growth reduces by 0.053% (statistically significant at 1%) under the OLS estimation for the all countries group, in regression model 1. The TAR column indicates that the threshold level is at 30% of GDP. The coefficients below and above this threshold level are -0.056 (statistically significant at 1%) and 0.055 (statistically insignificant). The gamma parameter in the LSTR column shows that it is 6, which suggests that while the speed of transition may be fast, we would still choose to use the LSTR as the appropriate technical model for analytical purposes. The coefficients of the 'low' and 'high' regime are -0.055 (statistically significant at 1%) and 0.036 (statistically insignificant).

For developing economies, the OLS estimation for the FA coefficient indicates that 1% increase in FA results in a reduction of growth by 0.061% (statistically significant at 1%). The LSTR column will not be taken for consideration because the gamma value is equal to 11. The TAR threshold value equals 29. The coefficients below and above the threshold are -0.067 (statistically significant at 1%) and 0.100 (statistically insignificant). For transition and emerging market economies, the number of observation do not exceed 60 and it may be open to interpretation if these results have any statistical importance. For emerging market economies, the OLS, and TAR estimated coefficients of interest are statistically insignificant. For the LSTR column (regression model 12), the coefficients of the 'low' and 'high' regime are -0.117 (statistically significant at 5%) and -5.01 (statistically significant at 10%). It can be concluded that the model is nonlinear, but the test of remaining nonlinearities shows that there are more than two regimes (multiple thresholds).

Stylized Facts: Summary of the Results

The stylized factual findings deduced from this research paper are the following (note that the deductions are noted for each of the de facto IFI proxy variables and then the subsequent findings for each country groups are also noted):

1. FDI (% of GDP)
    a. For all economies, the threshold level of FDI is at 55% of GDP. While both regimes indicate a positive increase in growth, above the threshold growth increases significantly higher than that below the threshold. However, tests of nonlinearity indicate the existence of multiple thresholds.
    b. For developing economies, the threshold level of FDI is at 24% of GDP. While coefficients below and above the threshold are both growth enhancing, results indicate there is a larger increase in growth above the threshold than below. However, there are multiple thresholds.
    c. For transition economies, the threshold level of FDI is at 19% of GDP. Interestingly, while it is growth enhancing below the threshold, it is in fact growth retarding above this threshold. However, observations are low.
    d. For emerging market economies, the threshold level of FDI is at 9% of GDP. Quite surprisingly, despite the low threshold level, it is growth enhancing below the threshold but it is in fact growth retarding above this threshold. However, observations are low.

2. EFPI (% of GDP)
    a. For all economies, the threshold level is at 0-3%[22] of GDP, where it is growth enhancing (0.823%) below this threshold and growth retarding (-0.016%) above this threshold.
    b. For developing economies, the threshold level is at 0-2% of GDP, growth enhancing below and above the threshold. However, there is a larger increase in the growth rate below the threshold than above it.
    c. For transition economies, the threshold level is at 2% of GDP. Growth effects are both positive, below and above the threshold, but, interestingly growth increases significantly higher above the threshold. However, tests indicate that there are multiple thresholds.
    d. For emerging market economies, the threshold level is at 0% of GDP. The growth effect above the threshold is statistically insignificant, but below the threshold, it is positive and significant.
3. Non-Resident Bank Loans (% of GDP)
    a. For all economies, developing, and transition economies the threshold level of CBL is at 1% of GDP. The growth effects are negative above this threshold for all country groups. The growth effects are inconclusive below the threshold as they are not statistically significant.
    b. For emerging market economies, the results are inconclusive as the model is linear and the coefficient is statistically insignificant. However, the coefficients for the linear model in the robustness checks show that it is growth retarding overall.
4. Financial Account (% of GDP)
    a. For all economies and developing economies, the threshold level is at 30-31% of GDP. The growth effect below the threshold is growth retarding, but above the threshold, it is statistically insignificant. However, for all economies, the test results point to multiple thresholds.
    b. For transition economies, threshold level is at 1% of GDP. The growth effects are negative below the threshold, but above the threshold, the growth effect is inconclusive. However, the observations are very low.
    c. For emerging market economies, the threshold level is at 16% of GDP. The growth effects both below and above the threshold are negative. However, the observations are very low and the robustness checks give differing results for the growth effects as well as for the threshold measures.

These findings show that for developing economies, taking FDI, for instance, is that regardless of the level of FDI as a percentage of GDP, it will not be growth retarding. This is applicable for transition economies as well. However, for emerging economies, there is need for caution, as FDI above a certain threshold tends to be growth retarding. However, once again, it is crucial to emphasize that these results may be subject to potential endogeneity bias, and therefore should be treated cautiously. For developing, transition, and emerging economies, EFPI below 1-4% is growth enhancing, and in many cases, above this threshold, it is in fact growth retarding. This suggests that domestic investors in these economies, especially

[22] This incorporates the threshold findings for the 'robustness checks' section as well.

developing and transition economies are better off purchasing foreign securities as opposed to foreign investors buying domestic securities. Cross-border lending does not seem to enhance growth levels for developing and transition economies, therefore, the deployment of foreign funds must be used with caution. In terms of the level of financial openness, there is no doubt that higher levels of capital account openness is often associated with negative growth effects, probably due to range of factors that destabilize the macroeconomic indicators of known relevance. The results show that governments should regulate the market to reap the highest growth levels in the case of the benefit of the global economy overall.

***Table 3:* FDI (% of GDP) on Growth** **Time Period: 1961-2015 (5-year non-overlapping averages)** **Income Groups: Developing, Transition, and Emerging Market Economies** **Estimation Methods: Ordinary Least Squares (OLS), TAR (Threshold Regression), and LSTR (Logistic Smooth Transition Regression)**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-1.72e-0.5* (9.66e-06)*	*-1.72e-0.5* (9.66e-06)*	*-1.72e-0.5* (9.66e-06)*	*-9.68e-05 (6.13e-05)*	*-0.000113 (7.15e-05)*	*-0.000115* (6.93e-05)*	*-0.000258*** (9.16e-05)*	*-0.000211** (8.65e-05)*	*-0.00026** (8.74e-05)*	*-0.000115 (8.94e-05)*	*-9.97e-05 (8.67e-05)*	*-1.00e-04 (8.67e-05)*
Investment to GDP	*0.164*** (0.0347)*	*0.120*** (0.0217)*	*0.121*** (0.0209)*	*0.140*** (0.0316)*	*0.0969*** (0.0266)*	*0.0940*** (0.0251)*	*0.0122 (0.104)*	*0.00664 (0.102)*	*0.00444 (0.105)*	*0.172*** (0.0292)*	*0.165*** (0.0278)*	*0.165*** (0.0278)*
Population Growth	*0.548*** (0.123)*	*0.549*** (0.129)*	*0.551*** (0.126)*	*0.714*** (0.164)*	*0.658*** (0.162)*	*0.657*** (0.162)*	*0.927* (0.536)*	*0.841 (0.506)*	*0.834* (0.500)*	*0.649* (0.341)*	*0.654** (0.323)*	*0.653** (0.323)*
Inflation	*-0.00656** (0.00166)*	*-0.00653*** (0.00162)*	*-0.00647*** (0.00161)*	*-0.0064*** (0.00164)*	*-0.00644*** (0.00161)*	*-0.0064*** (0.00161)*	*-0.00901*** (0.00172)*	*-0.00846*** (0.00176)*	*-0.0089*** (0.00169)*	*-0.0051** (0.00229)*	*-0.00480** (0.00221)*	*-0.00480** (0.00221)*
Literacy Rate	*-0.0173*** (0.00663)*	*-0.0177*** (0.00653)*	*-0.0194*** (0.00652)*	*-0.0163* (0.00872)*	*-0.0164* (0.00856)*	*-0.0163* (0.00856)*	*-0.0473* (0.0271)*	*0.0055848 (0.0271)*	*-0.0539** (0.0263)*	*-0.0321** (0.0132)*	*-0.0385*** (0.0129)*	*-0.0385*** (0.0129)*
Life Expectancy	*0.0242 (-0.0213)*	*0.0403** (-0.0194)*	*0.0384** (0.0190)*	*0.0462** (0.0230)*	*0.0643*** (0.0241)*	*0.0661*** (0.0236)*	*0.320 (0.222)*	*0.310 (0.215)*	*0.313 (0.221)*	*0.0768* (0.0414)*	*0.0285 (0.0372)*	*0.0286 (0.0372)*
FDI	*0.121*** (0.0390)*			*0.242*** (0.0645)*			*0.206 (0.156)*			*0.104 (0.108)*		
$FDI - T\ if\ FDI < T$		*0.0828*** (0.0276)*			*0.165*** (0.0552)*			*0.419** (0.199)*			*0.462*** (0.129)*	
$FDI - T\ if\ FDI > T$		*1.583*** (0.188)*			*0.979*** (0.165)*			*-2.603*** (0.952)*			*-0.348*** (0.0727)*	
$W^{low}(FDI - c^*)$			*0.140*** (0.0242)*			*0.195*** (0.0508)*			*0.0176 (0.0925)*			*0.461*** (0.128)*
$W^{high}(FDI - c^*)$			*16.16*** (1.906)*			*0.942*** (0.135)*			*-5.729** (2.834)*			*-0.347*** (0.0724)*
Constant	*-1.615 (1.032)*	*1.685 (1.540)*	*6.286*** (1.721)*	*-3.006*** (1.128)*	*1.357 (1.830)*	*1.977 (1.692)*	*-14.58 (13.28)*	*-7.606 (10.90)*	*-13.64 (12.16)*	*-3.641 (2.846)*	*3.155 (3.144)*	*3.132 (3.141)*
Observations	*885*	*885*	*885*	*587*	*587*	*587*	*101*	*101*	*101*	*126*	*126*	*126*
R^2	*0.423*	*0.470*	*0.473*	*0.465*	*0.504*	*0.505*	*0.517*	*0.544*	*0.532*	*0.556*	*0.594*	*0.594*
TAR (T) or LSTR (c)*		*38*	*55*		*25*	*24*		*16*	*19*		*8*	*9*
LSTR parameter (γ)*			*1*			*1*			*1*			*1*
LM Test (GTD 2005) H0: Linear Model			*25.64*			*21.47*			*25.73*			*26.95*
p-value nonlinearity			*0.0287*			*0.0902*			*0.0204*			*0.0259*
LM Test for remaining nonlinearities			*182.8*			*48.69*			*19.750*			*14.76*
p-value remaining nonlinearity			*0*			*1.01e-05*			*0.638*			*0.395*

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

Table 4:* EFPI (% of GDP) on Growth** ***Time Period: 1961-2015 (5-year non-overlapping averages) ***Income Groups: Developing, Transition, and Emerging Market Economies*** ***Estimation Methods: Ordinary Least Squares (OLS), TAR (Threshold Regression), and LSTR (Logistic Smooth Transition Regression)***												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.59e-05** *(1.02e-05)*	*-2.59e-05*** *(1.02e-05)*	*-2.77e-05**** *(1.01e-05)*	*-1.42e-05* *(9.01e-05)*	*-3.04e-05* *(9.17e-05)*	*-2.15e-05* *(9.07e-05)*	*-0.000180** *(0.000102)*	*-0.000180** *(0.000102)*	*-0.000171** *(0.000102)*	*-0.00020*** *(8.63e-05)*	*-0.00020*** *(8.56e-05)*	*-0.00019*** *(8.51e-05)*
Trade to GDP	*0.0195*** *(0.00901)*	*0.0199*** *(0.00906)*	*0.0202*** *(0.00914)*	*0.0333*** *(0.0152)*	*0.0340*** *(0.0152)*	*0.0339*** *(0.0152)*	*-0.00102* *(0.0107)*	*-0.00330* *(0.0109)*	*-0.00224* *(0.0108)*	*3.12e-05* *(0.00497)*	*0.00158* *(0.00517)*	*0.00216* *(0.00519)*
Population Growth	*0.728**** *(0.129)*	*0.724**** *(0.129)*	*0.724**** *(0.131)*	*0.973**** *(0.184)*	*0.978**** *(0.183)*	*0.981**** *(0.184)*	*1.090** *(0.584)*	*1.145** *(0.589)*	*1.122** *(0.588)*	*0.322* *(0.320)*	*0.329* *(0.320)*	*0.362* *(0.318)*
Inflation	*-0.0033**** *(0.00119)*	*-0.0033**** *(0.00119)*	*-0.00336**** *(0.00119)*	*-0.0032**** *(0.00115)*	*-0.00322**** *(0.00113)*	*-0.00324**** *(0.00114)*	*-0.0099**** *(0.00160)*	*-0.00986**** *(0.00161)*	*-0.00986**** *(0.00161)*	*-0.00542*** *(0.00212)*	*-0.00546*** *(0.00214)*	*-0.00541*** *(0.00212)*
Literacy Rate	*-0.0159*** *(0.00710)*	*-0.0160*** *(0.00710)*	*-0.0167*** *(0.00709)*	*-0.0191*** *(0.00876)*	*-0.0204*** *(0.00878)*	*-0.0196*** *(0.00877)*	*-0.0385* *(0.0290)*	*-0.0375* *(0.0292)*	*-0.0377* *(0.0292)*	*-0.0561**** *(0.0148)*	*-0.0554**** *(0.0148)*	*-0.0549**** *(0.0147)*
Life Expectancy	*0.0413* *(0.0287)*	*0.0426* *(0.0285)*	*0.0423* *(0.0284)*	*0.0549** *(0.0298)*	*0.0560** *(0.0296)*	*0.0557** *(0.0296)*	*0.237*** *(0.105)*	*0.255*** *(0.107)*	*0.242*** *(0.106)*	*0.172**** *(0.0494)*	*0.168**** *(0.0500)*	*0.160**** *(0.0499)*
$EFPI$	*-0.0151** *(0.00876)*			*0.100* *(0.0764)*			*0.572* *(1.133)*			*0.978*** *(0.417)*		
$EFPI - T \; if \; EFPI < T$		*0.823*** *(0.320)*			*1.819**** *(0.610)*			*-0.310* *(1.237)*			*2.397**** *(0.550)*	
$EFPI - T \; if \; EFPI > T$		*-0.0157** *(0.00886)*			*-0.103** *(0.0595)*			*112.0*** *(48.73)*			*0.791** *(0.424)*	
$W^{low}(EFPI - c^*)$			*1.020**** *(0.392)*			*3.576*** *(1.718)*			*1.066* *(1.022)*			*3.125**** *(0.562)*
$W^{high}(EFPI - c^*)$			*-0.0153** *(0.00879)*			*0.0361* *(0.0452)*			*44.77** *(25.65)*			*0.605* *(0.377)*
Constant	*-0.281* *(1.238)*	*-0.363* *(1.231)*	*-0.362* *(1.231)*	*-2.571*** *(1.179)*	*-0.877* *(1.235)*	*-2.691*** *(1.177)*	*-8.917* *(6.735)*	*-10.60* *(7.230)*	*-6.874* *(6.691)*	*-3.508* *(3.065)*	*-3.331* *(3.093)*	*-3.003* *(3.077)*
Observations	*1,066*	*1,066*	*1,066*	*714*	*714*	*714*	*118*	*118*	*118*	*145*	*145*	*145*
R^2	*0.181*	*0.183*	*0.184*	*0.212*	*0.219*	*0.217*	*0.419*	*0.424*	*0.423*	*0.465*	*0.470*	*0.476*
TAR (T) or LSTR (c)*		*0*	*0*		*1*	*0*		*2*	*2*		*0*	*0*
LSTR parameter (γ)*			*15*			*1*			*1*			*1*
LM Test (GTD 2005) H0: Linear Model			*27.76*			*23.63*			*22.824*			*21.23*
p-value nonlinearity			*0.0338*			*0.0626*			*0.0631*			*0.0795*
LM Test for remaining nonlinearities			*15.99*			*19.37*			*61.12*			*29.47*
p-value remaining nonlinearity			*0.341*			*0.250*			*1.41e-08*			*0.0209*

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 5:* Non-Resident Bank Loans (% of GDP) on Growth**
Time Period: 1961-2015 (5-year non-overlapping averages)
Income Groups: Developing, Transition, and Emerging Market Economies
Estimation Methods: Ordinary Least Squares (OLS), TAR (Threshold Regression), and LSTR (Logistic Smooth Transition Regression)

	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*1.56e-06*	*1.47e-06*	*5.24e-06*	*3.42e-05*	*1.66e-05*	*3.90e-05*	*-0.000106*	*-0.000139*	*-0.000153*	*-0.000194**	*-0.000167*	*-0.000170*
	(2.35e-05)	*(2.35e-05)*	*(2.41e-05)*	*(0.000110)*	*(0.000112)*	*(0.000112)*	*(0.000103)*	*(0.000111)*	*(0.000115)*	*(0.000109)*	*(0.000105)*	*(0.000104)*
Trade to GDP	*0.0343***	*0.0349***	*0.0349***	*0.0427***	*0.0431***	*0.0437***	*-0.00170*	*0.00189*	*0.00210*	*-0.000904*	*0.00225*	*0.00159*
	(0.0163)	*(0.0162)*	*(0.0163)*	*(0.0205)*	*(0.0205)*	*(0.0205)*	*(0.0111)*	*(0.0117)*	*(0.0121)*	*(0.00621)*	*(0.00630)*	*(0.00596)*
Population Growth	*0.907****	*0.916****	*0.913****	*1.285****	*1.308****	*1.320****	*1.010**	*1.198**	*1.108**	*0.318*	*0.385*	*0.334*
	(0.163)	*(0.163)*	*(0.163)*	*(0.226)*	*(0.223)*	*(0.230)*	*(0.600)*	*(0.636)*	*(0.604)*	*(0.340)*	*(0.341)*	*(0.338)*
Inflation	*-0.00332***	*-0.00318***	*-0.00326***	*-0.0038***	*-0.00329***	*-0.00331***	*-0.011****	*-0.00877****	*-0.00940****	*-0.0099****	*-0.0100****	*-0.0099****
	(0.00147)	*(0.00138)*	*(0.00143)*	*(0.00137)*	*(0.00129)*	*(0.00132)*	*(0.00162)*	*(0.00177)*	*(0.00174)*	*(0.00148)*	*(0.00147)*	*(0.00149)*
Literacy Rate	*-0.0192**	*-0.0194***	*-0.0192**	*-0.0172*	*-0.0162*	*-0.0165*	*-0.0367*	*-0.0288*	*-0.0436*	*-0.0400***	*-0.0339**	*-0.0367***
	(0.00983)	*(0.00980)*	*(0.00981)*	*(0.0121)*	*(0.0119)*	*(0.0119)*	*(0.0294)*	*(0.0287)*	*(0.0293)*	*(0.0181)*	*(0.0183)*	*(0.0177)*
Life Expectancy	*0.0415*	*0.0413*	*0.0385*	*0.0554***	*0.0560***	*0.0523**	*0.220**	*0.202**	*0.198**	*0.139***	*0.133***	*0.131***
	(0.0261)	*(0.0261)*	*(0.0263)*	*(0.0279)*	*(0.0281)*	*(0.0283)*	*(0.120)*	*(0.110)*	*(0.114)*	*(0.0570)*	*(0.0546)*	*(0.0551)*
CBL	*-0.0369***			*-0.0114**			*-0.0387**			*-0.0354*		
	(0.0175)			*(0.00671)*			*(0.0229)*			*(0.0436)*		
$CBL - T\ if\ CBL < T$		*3.664*			*3.287*			*8.394*			*-0.0795***	
		(2.231)			*(2.181)*			*(5.632)*			*(0.0396)*	
$CBL - T\ if\ CBL > T$		*-0.0416***			*-0.0127**			*-0.0475***			*0.337****	
		(0.0177)			*(0.00684)*			*(0.0198)*			*(0.0887)*	
$W^{low}(CBL - c^*)$			*0.791*			*0.981*			*0.576*			*-0.0447**
			(0.572)			*(0.635)*			*(0.514)*			*(0.0270)*
$W^{high}(CBL - c^*)$			*-0.0360***			*-0.0112**			*-0.0528****			*4.212****
			(0.0173)			*(0.00662)*			*(0.0192)*			*(0.781)*
Constant	*-1.095*	*-1.010*	*-1.183*	*-3.752***	*-3.764***	*-3.918***	*-7.606*	*-6.933*	*-5.146*	*-1.486*	*-4.624*	*-3.684*
	(1.410)	*(1.410)*	*(1.411)*	*(1.799)*	*(1.804)*	*(1.843)*	*(7.659)*	*(7.225)*	*(7.227)*	*(3.985)*	*(4.130)*	*(4.032)*
Observations	*630*	*630*	*630*	*455*	*455*	*455*	*115*	*115*	*115*	*97*	*97*	*97*
R^2	*0.274*	*0.284*	*0.280*	*0.290*	*0.299*	*0.298*	*0.418*	*0.462*	*0.436*	*0.532*	*0.553*	*0.560*
TAR (T) or LSTR (c)*		*1*	*2*		*1*	*2*		*1*	*5*		*39*	*52*
LSTR parameter (γ)*			*7*			*15*			*15*			*2*
LM Test (GTD 2005) H0: Linear Model			*21.82*			*24.94*			*19.080*			*19.947*
p-value nonlinearity			*0.0258*			*0.0185*			*0.0615*			*0.0535*
LM Test for remaining nonlinearities			*12.82*			*8.442*			*8.985*			*25.88*
p-value remaining nonlinearity			*0.305*			*0.673*			*0.623*			*0.00677*

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the results table. CBL refers to cross-border lending which is non-resident bank loans as a percentage of GDP.

***Table 6:* Financial Account (% of GDP) on Growth**
Time Period: 1961-2015 (5-year non-overlapping averages)
Income Groups: Developing, Transition, and Emerging Market Economies
Estimation Methods: Ordinary Least Squares (OLS), TAR (Threshold Regression), and LSTR (Logistic Smooth Transition Regression)

	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-3.97e-05** (8.97e-06)*	*-4.04e-05*** (9.08e-06)*	*-4.01e-05*** (9.10e-06)*	*-1.37e-06** (2.35e-05)*	*-1.47e-06** (2.35e-05)*	*-1.47e-06 (2.35e-05)*	*-0.000167 (0.000151)*	*-0.000162 (0.000158)*	*-0.000167 (0.000156)*	*-0.00019* (0.000114)*	*-0.000210* (0.000118)*	*-0.000207* (0.000113)*
Trade to GDP	*-3.97e-05** (8.97e-06)*	*-4.04e-05*** (9.08e-06)*	*-4.01e-05*** (9.10e-06)*	*-0.00238*** (7.83e-05)*	*-0.00239*** (7.91e-05)*	*-0.00239*** (7.90e-05)*	*0.0888 (0.0711)*	*0.0938 (0.0699)5*	*0.101 (0.0715)*	*0.180*** (0.0390)*	*0.178*** (0.0392)*	*0.184*** (0.0400)*
Population Growth	*0.264** (0.122)*	*0.258** (0.122)*	*0.261** (0.122)*	*0.367* (0.207)*	*0.356* (0.208)*	*0.357* (0.208)*	*0.266 (0.380)*	*0.273 (0.379)*	*0.331 (0.397)*	*0.299 (0.444)*	*0.380 (0.464)*	*0.544 (0.495)*
Inflation	*0.0461** (0.0193)*	*0.0446** (0.0195)*	*0.0449** (0.0196)*	*0.0375* (0.0207)*	*0.0346 (0.0210)*	*-0.0195 (0.0348)*	*-0.0758 (0.0502)*	*-0.0763 (0.0481)*	*-0.0820* (0.0485)*	*-0.0195 (0.0348)*	*-0.0224 (0.0347)*	*-0.0252 (0.0343)*
Literacy Rate	*-0.0139* (0.00720)*	*-0.0139* (0.00718)*	*-0.0138* (0.00721)*	*-0.00247 (0.0103)*	*-0.00268 (0.0103)*	*-0.00261 (0.0103)*	*-0.0417** (0.0177)*	*-0.0456** (0.0185)*	*-0.0411** (0.0177)*	*-0.00899 (0.0147)*	*-0.00663 (0.0150)*	*-0.00359 (0.0147)*
Life Expectancy	*-0.0257 (0.0226)*	*-0.0255 (0.0225)*	*-0.0259 (0.0227)*	*0.00456 (0.0252)*	*0.00537 (0.0250)*	*0.00517 (0.0251)*	*-0.181 (0.181)*	*-0.188 (0.185)*	*-0.197 (0.187)*	*-0.00240 (0.0350)*	*0.000133 (0.0370)*	*-0.00177 (0.0366)*
FA	*-0.0532*** (0.0149)*			*-0.0607*** (0.0198)*			*-0.0819 (0.103)*			*-0.0402 (0.0517)*		
$FA - T \; if \; FA < T$		*-0.0555*** (0.0156)*			*-0.0661*** (0.0212)*			*-8.096* (4.702)*			*-0.0924 (0.0612)*	
$FA - T \; if \; FA > T$		*0.0547 (0.102)*			*0.100 (0.113)*			*-0.0411 (0.118)*			*0.0212 (0.113)*	
$W^{low}(FA - c^*)$			*-0.0545*** (0.0155)*			*-0.0657*** (0.0211)*			*-9.041 (5.944)*			*-0.117** (0.0550)*
$W^{high}(FA - c^*)$			*0.0360 (0.0938)*			*0.0948 (0.108)*			*-0.0700 (0.107)*			*-5.006* (2.591)*
Constant	*3.822*** (1.382)*	*2.223 (1.454)*	*2.191 (1.466)*	*1.938 (1.623)*	*0.0689 (1.838)*	*0.0822 (1.842)*	*21.09* (11.33)*	*21.37* (11.54)*	*21.73* (11.63)*	*1.668 (3.116)*	*1.137 (3.379)*	*-1.322 (3.230)*
Observations	*388*	*388*	*388*	*253*	*253*	*253*	*50*	*50*	*50*	*58*	*58*	*58*
R^2	*0.368*	*0.369*	*0.369*	*0.270*	*0.273*	*0.273*	*0.363*	*0.387*	*0.383*	*0.547*	*0.554*	*0.575*
TAR (T) or LSTR (c)*		*30*	*31*		*30*	*30*		*1*	*1*		*0*	*16*
LSTR parameter (γ)*			*6*			*11*			*13*			*2*
LM Test (GTD 2005) H0: Linear Model			*15.04*			*16.17*			*16.249*			*24.38*
p-value nonlinearity			*0.0900*			*0.0855*			*0.0715*			*0.0109*
LM Test for remaining nonlinearities			*15.62*			*9.388*			*8.223*			*39.89*
p-value remaining nonlinearity			*0.0752*			*0.402*			*0.512*			*7.96e-06*

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note 1: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the results table.
Note 2: FA refers to the financial account. The results presented above are for those of the Current Account Balance (% of GDP), this is used as a proxy for the financial account (refer to the theoretical intuition of FA=-CA).

Conclusion

This research paper examines the effect of financial integration on growth for 185 countries over the period 1961-2015. The econometric methodologies deployed for this research paper are the threshold regression (TAR) model and the logistic smooth transition regression (LSTR) model. The OLS estimations are also presented. Various other robustness checks are conducted to validate the findings, where the bootstrapping technique is the most predominant and sophisticated robustness checking technique used for this report. The inferences deduced for the de jure measure of financial integration are the following:

1. For all economies, threshold level of KAOPEN is at 21. It is growth enhancing below the threshold and growth retarding above the threshold.
2. For developing economies, the threshold level of KAOPEN is at 47 (acquired from the robustness checks). The growth effect below the threshold is inconclusive, but it is negative above the threshold and the magnitude of the coefficient shows that it is severely damaging for growth.
3. For transition economies, threshold level of KAOPEN is at 10 (acquired from the robustness checks in the appendix[23]), where the only deduction of relevance is that it is growth enhancing below the threshold.
4. For emerging market economies, the threshold level of KAOPEN is at 15. The growth effects are positive below and above the threshold, but the growth rate increases after it crosses the threshold.

For the global economy on the whole, the policy recommendation is to partially liberalize, or moderately regulate, then the rewards of financial integration can be fully realized, with increasing growth levels below this particular threshold, but growth retarding above this threshold. For developing economies, the threshold level of openness may well be high, but, the coefficient below the threshold is statistically insignificant and above the threshold the coefficient is negative. Therefore, it would be wrong to assume that it is perhaps to the benefit of developing economies if the financial markets are more open due to the high threshold, but because shows that it is negative above the threshold, and given the magnitude of the coefficient, it shows how harmful a highly liberalized financial market can be for developing economies, particularly due to the fragilities it will cause to the macroeconomic conditions. Interestingly, considerable importance should be given to the openness of financial markets of transition economies (despite the fact that numerous findings show that it is statistically insignificant) as the threshold level of optimality is very low, which indicates a highly regulated market optimizes growth.

For emerging market economies however, the growth effects are higher with more financial openness (as it is growth enhancing both below and above the threshold). This is in stark contrast to the deductions made for the other country groups (as well as for the global economy – all the countries in the dataset), where the tendency is to increase up to a certain threshold, after which it is growth retarding. This goes to show the capacity of emerging markets and their financial institutions to absorb (net) capital inflows. However, it must also be noted that it is much better for emerging

[23] Refer to table 11.

markets to moderately regulate rather than fully open, because a drop in the growth rate is observed, even though it is not negative.

Contribution to Field of Research

The contributions that this research paper (chapter 2) makes to the existing literature in the associated field of research are the following:

1. The traditionally used Panel Threshold Regression (PTR) model or the Threshold Regression (TAR) model introduced by Hansen (1999) and/or the extension by Caner and Hansen (2004) are commonly used in the existing literature. This methodology uses the endogenous interaction variables as the threshold variables. While each paper makes an additional contribution to the literature by focusing on differing institutional factors, most of these papers often do not address the threshold value of the key variable of interest in the first place. This by no means discredits the researching prowess of the indirect researching channels, which is in fact a motivation for the author of this report, but this issue must first be addressed before addressing the threshold levels of the interaction terms. This is the prime agenda of this particular research paper. Instead of focusing on a wide variety of institutional factors or multiple channels of influence, the direct channel (for various IFI proxy measures), threshold values are calculated. This is probably a prelude to focusing on interaction terms for further research purposes.
2. The repercussions of EFPI on the macroeconomic scale was investigated by Durham (2004), along with the effects of FDI. The motivation or perhaps, one of the fundamental driving factors behind investigating the threshold measures stems from Durham's paper on absorptive capacities. However, Durham (2004) used a cross-sectional OLS regression methodology, taking into account the absorptive capacities, without threshold measures. This paper addresses the issue of the direct threshold measure, but the interaction terms are not considered for this particular paper.
3. The index developed by Chinn and Ito (2006), academically recognized as the Chinn-Ito index. This is formally recognized as the de jure measure of capital account openness. The research papers that use threshold techniques have not thus far used a de jure measure of financial openness to determine a threshold level. This research paper uses the Chinn-Ito index as a direct threshold proxy variable for financial integration. The results acquired from this particular variable are in fact thought provoking and interesting for further research purposes e.g. using interaction terms endogenously.
4. This research paper embodies a cross-comparative study effectively for developing, transition, and emerging market economies. The literature does not have sufficient focus on transition and emerging economies in particular, and therefore this is a focused and directed addition to the literature. Furthermore, it incorporates an analysis for all regression models for the global economy.
5. Research papers that deploy Hansen's (1999) and/or Caner and Hansen's (2004) threshold techniques fail to address the problem of heteroscedasticity. For instance, Chen and Quang (2014) use excellent interaction variables to underpin and underline various channels of influence on growth. However, they do not discuss the problem of heteroscedasticity. This research paper tests

for heteroscedasticity in the threshold models and addresses this problem altogether.

6. Arguably, the most fundamental statistical or econometrical contribution that this research paper makes is that of using the logistic smooth transition regression (LSTR) methodology. This technique is identical to the one used by Raphael et al. (2012) where they investigate the threshold level of inflation. Hansen's (1999) threshold methodology is the most commonly used technique; however, LSTR provides a stern advancement, by looking at the transition speed from one regime to another, which determines the more appropriate estimator the TAR or the LSTR.
7. Gonzalez, Terasvirta, and van Dijk (2005) test for nonlinearities firstly looks at whether the regression model is linear and secondly it tests whether or not there are any remaining thresholds i.e. whether or not the regression model has more than two regimes (note that the LSTR or the TAR only accounts for two regimes). This test is not used in the research papers that use threshold techniques in the IFI-growth literature. This is a fundamental flaw not to determine in the first place whether it is appropriate to examine the existence of a threshold in the first place. Furthermore, it is erroneous to come to a definitive conclusion that there is one particular threshold and deduce inferences that may in fact be misleading. For instance, the results are rather interesting for the FDI variable in this research paper. However, after close examination, when one notices that there are multiple thresholds in this regression model, one cannot take the coefficients of the two regimes seriously due to the existence of more than two regimes. This is a technical adjustment that must be made for the research papers that deploy the threshold technique.

Suggestions for Further Work

For further work, the definitive advancement that can be made from this particular research report is to use interaction terms endogenously. For instance, the legal and political and other institutional factors (this is because relevant financial institutional factors are often interacted) of interest should be explored to definitively pinpoint the threshold levels to aware governments and policymakers alike. Furthermore, an interesting research trajectory would be to focus on the effects of financial integration on the tradable sector, thereby decomposing growth effects.

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Appendix 1: Explorative Data Analysis

Explorative Data Analysis 1: Historical Trends

In this section, the historical background of financial integration with respect to proxy variables used to capture it in this research paper is illustrated for developing, transition, and emerging market economies. The time-period for these time series graphs will span from 1961-2015, however, it is important to note that not all the proxy variables have perfect data availability on the aforementioned period. The key points that can be taken from this section is that there is a tendency for the de facto measures of financial integration to be volatile, especially for EFPI and NRBL.

Panel 1: Historical Background for All Economies

Figure 1: ***FDI (% of \|GDP)***

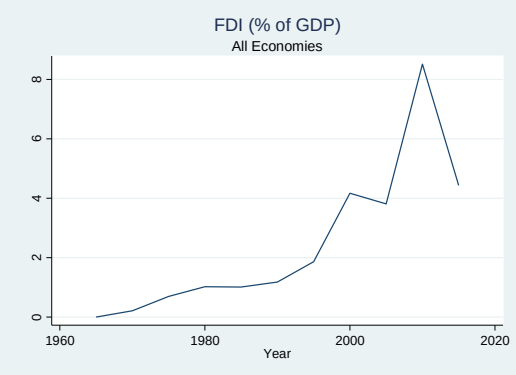


Figure 2: ***EFPI (% of GDP)***

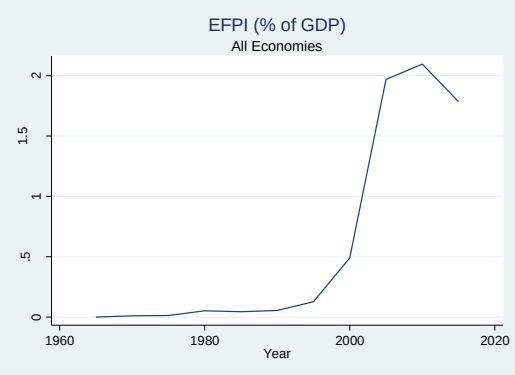


Figure 3: ***Non-Resident Bank Loan (% of GDP)***

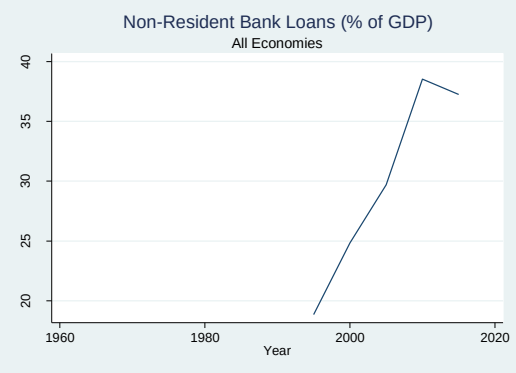


Figure 4: ***Net Financial Account (% of \|GDP)***

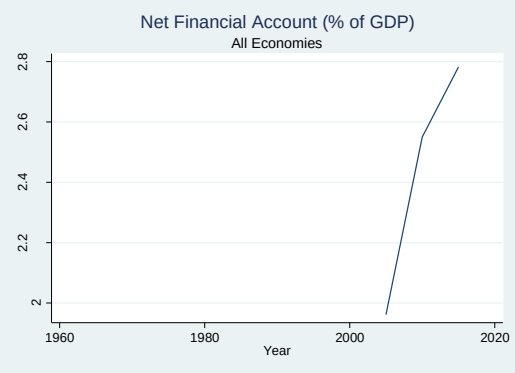
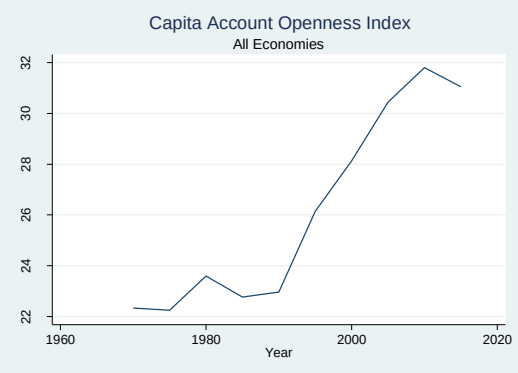


Figure 5: ***Chinn-Ito Index (De Jure Measure of Capital Account Openness)***



Panel 1 illustrates the historical trends in series for all economies in the dataset. FDI and EFPI (EFPI only increases up to 2% of GDP) show a gradual increase over time and there is a sudden fall due to the global financial crisis in 2008-09. For non-resident bank loans and the financial account, there is an unavailability of data – data starts after 1995 and 2000 respectively. The de jure measure of capital account openness shows a gradual increase from 1970, with a hiccup in the mid-80s and during the global financial crisis.

***Panel 2:* Historical Background for Developing Economies (1961-2015)**

***Figure 6:* FDI (% of |GDP)**

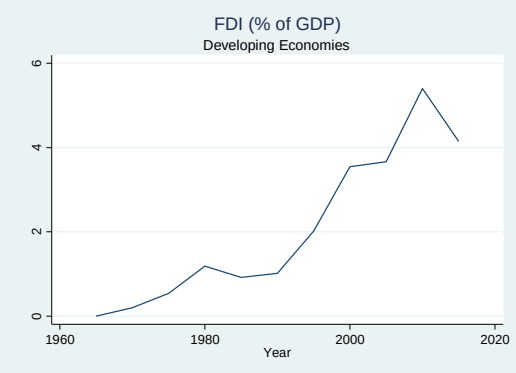


***Figure 7:* EFPI (% of GDP)**

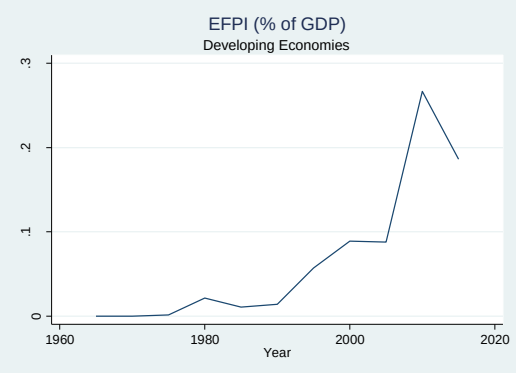


***Figure 8:* Non-Resident Bank Loan (% of GDP)**

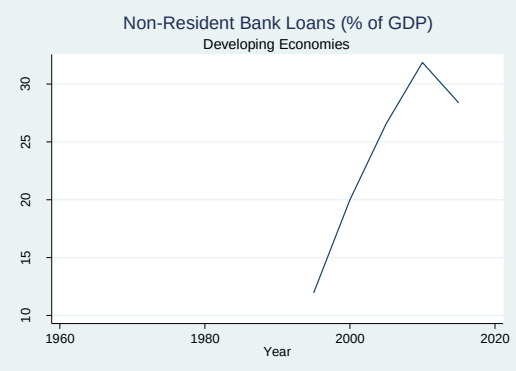


***Figure 9:* Net Financial Account (% of |GDP)**

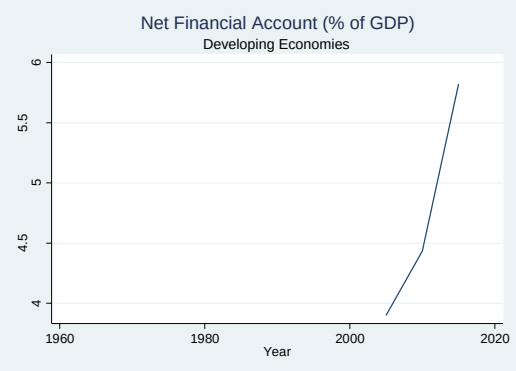
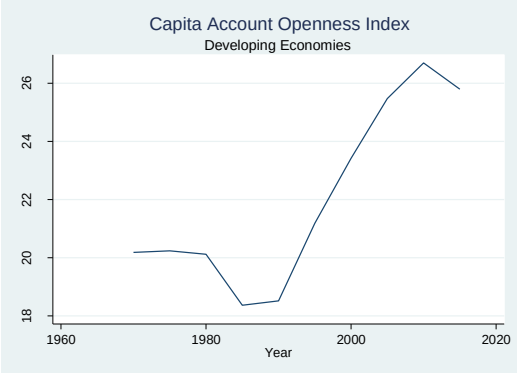


***Figure 10:* Chinn-Ito Index (De Jure Measure of Capital Account Openness)**



Panel 2 illustrates the historical background for developing economies in the dataset. For developing economies (a large proportion of countries in the dataset is comprised

of developing countries), FDI and EFPI (note that the increase in EFPI is only by 1-3%) steadily increase over time. There is a rapid increase noticed for non-resident bank loans and net financial account over a short period. The de jure measure of capital account openness initially falls in the early 80s, but recovers in the 90s and there is a steady increase up until the hiccup of the global recession.

***Panel 3:* Historical Background for Transition Economies (1961-2015)**

***Figure 11:* FDI (% of |GDP)**

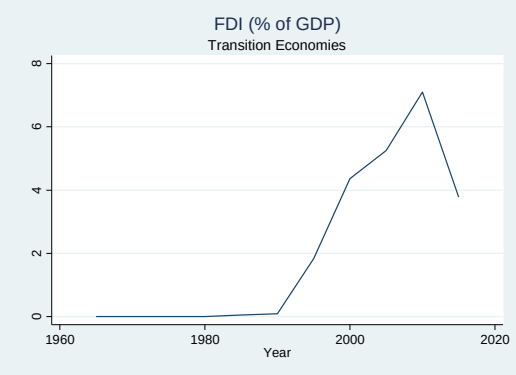


***Figure 12:* EFPI (% of GDP)**

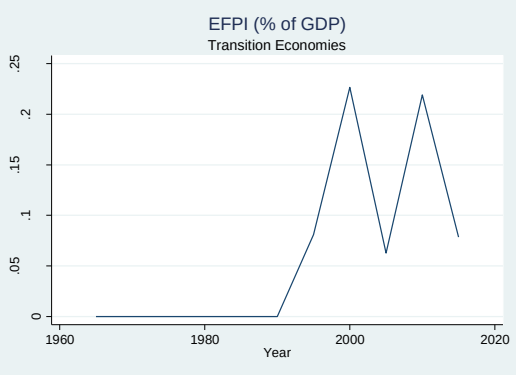


***Figure 13:* Non-Resident Bank Loan (% of GDP)**

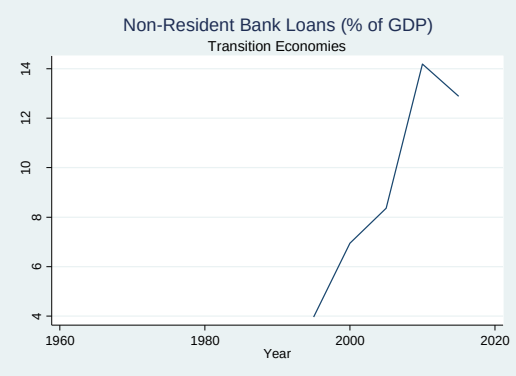


***Figure 14:* Net Financial Account (% of |GDP)**

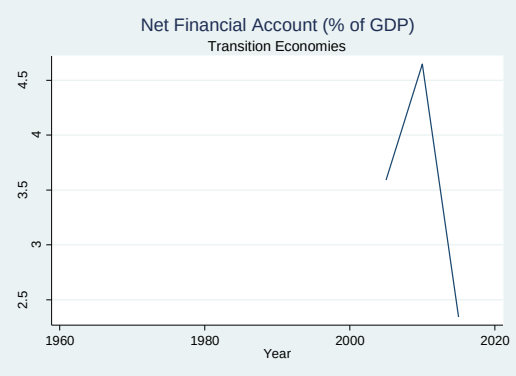
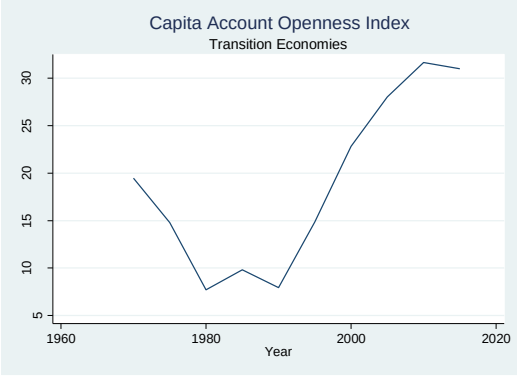


***Figure 15:* Chinn-Ito Index (De Jure Measure of Capital Account Openness)**



Panel 3 illustrates the historical background for transition economies in the dataset. Initially, the level of FDI is very low for transition economies, but there is a sharp increase up until 2009. EFPI behaves erratically, where two clear peaks can be observed. Non-resident bank loans increase sharply, but reaches levels far below than

the world average or the average of developing economies. The financial account increases but there is a sharp decline in recent years (improvement in the performance of the current account of transition economies). Capital account openness index shows highly regulated financial markets in the 80s, but sharp increase since.

Panel 4: Historical Background for Emerging Market Economies (1961-2015)

Figure 16: ***FDI (% of \|GDP)***

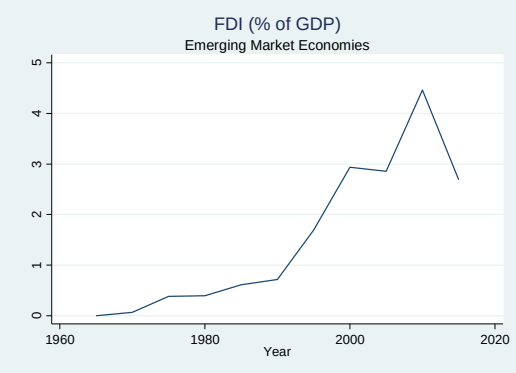


Figure 17: ***EFPI (% of GDP)***

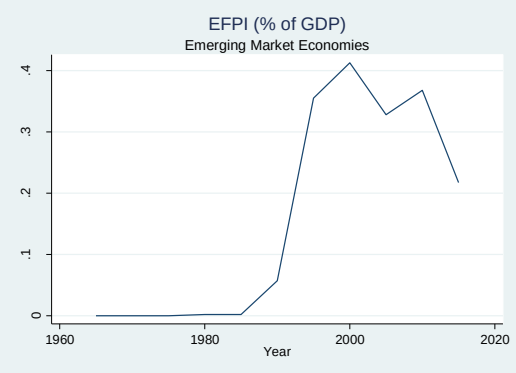


Figure 18: ***Non-Resident Bank Loan (% of GDP)***

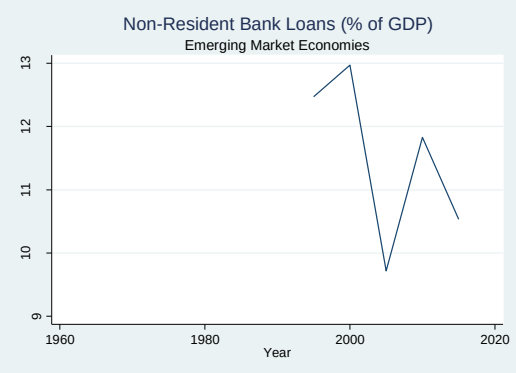


Figure 19: ***Net Financial Account (% of \|GDP)***

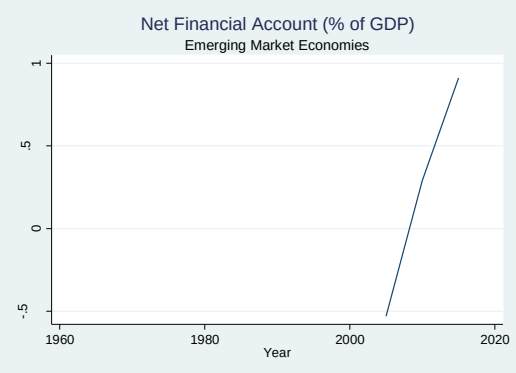
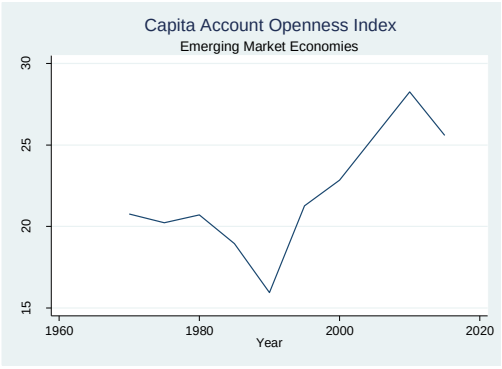


Figure 20: ***Chinn-Ito Index (De Jure Measure of Capital Account Openness)***



Panel 4 illustrates the historical background for emerging market economies. There is a gradual increase in the FDI over time. However, the EFPI levels are substantially low (lower than world average) for EMEs, even though there is a sharp increase followed by a sharp decrease in EFPI. Non-resident bank loans fluctuate erratically. Emerging markets regulate their financial markets up until 1990, and then there is a steady increase in the openness of the financial systems.

Explorative Data Analysis 2: Scatter Graphs

This section will look at the illustrative relationship (via the use of scatter graphs and regression i.e. the line of best fit) between the dependent variable of interest (Real GDP Growth) and the key independent variables of interest (the five proxy variables of international financial integration).

***Panel 5:** Explorative Data Analysis of Real GDP Growth (Annual %) and IFI (proxy variables) in All Economies (1961-2015)*

***Figure 21:** FDI (% of |GDP)*

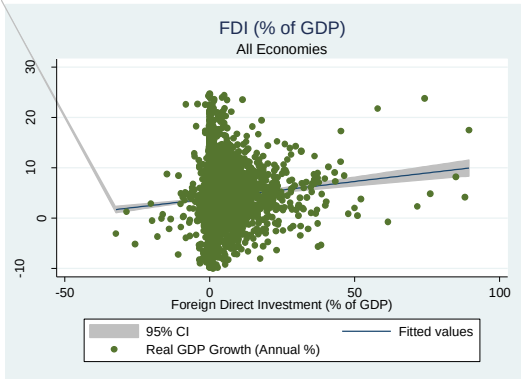


***Figure 22:** EFPI (% of GDP)*

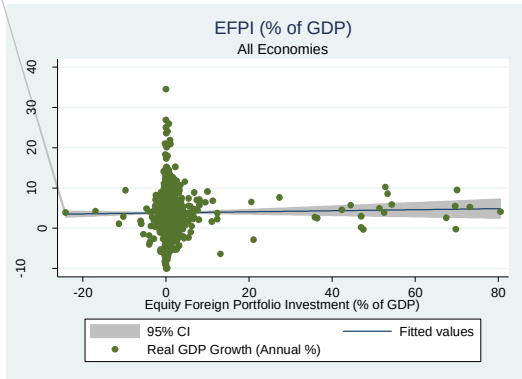


***Figure 23:** Non-Resident Bank Loan (% of GDP)*

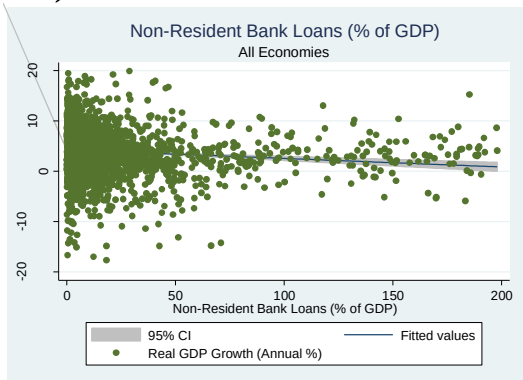


***Figure 24:** Net Financial Account (% of |GDP)*

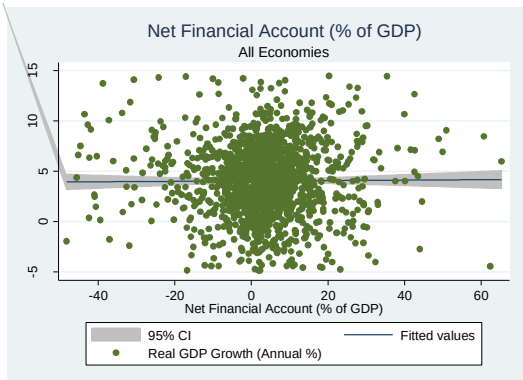
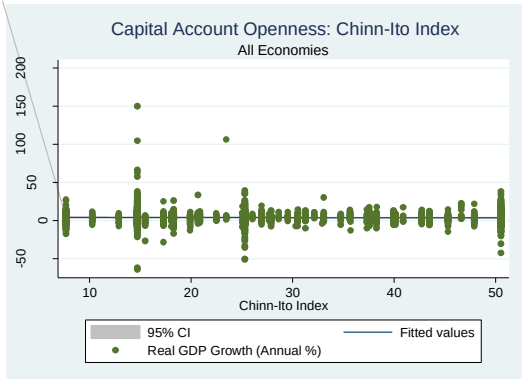


***Figure 25:** Chinn-Ito Index (De Jure Measure of Capital Account Openness)*



Panel 5 illustrates the relationship between the dependent variable of interest used to measure macroeconomic performance and proxy variables for IFI for all economies in

the dataset. Figures 21, 22, 23, 24, and 25 do not explicitly illustrate a precise and/or a definitive relationship for all the countries included in the dataset. Figure 21 indicates a weak positive relationship between FDI and growth. Figure 23 indicates a weak negative relationship between cross-border lending and growth.

***Panel 6:* Explorative Data Analysis of Real GDP Growth (Annual %) and IFI (proxy variables) in Developing Economies (1961-2015)**

***Figure 26:* FDI (% of |GDP)**

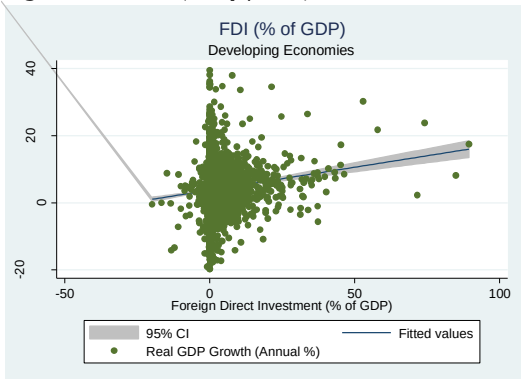


***Figure 27:* EFPI (% of GDP)**

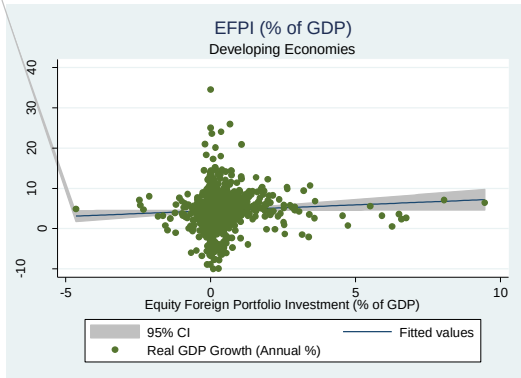


***Figure 28:* Non-Resident Bank Loans (% of GDP)**

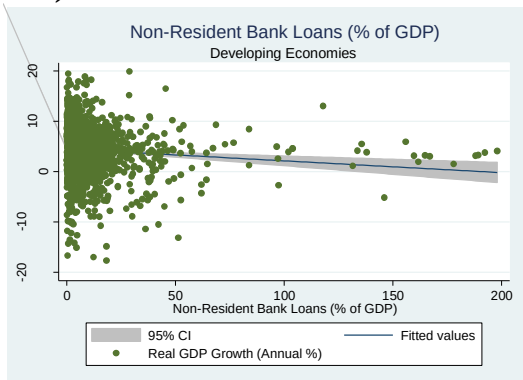


***Figure 29:* Net Financial Account (% of |GDP)**

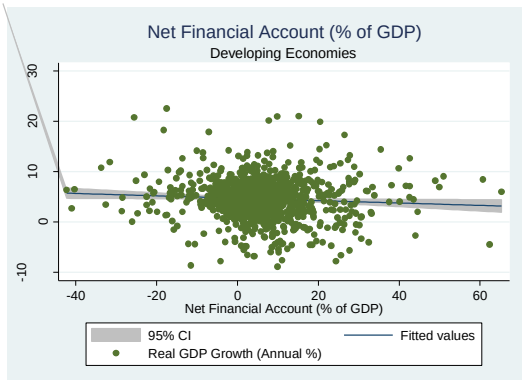
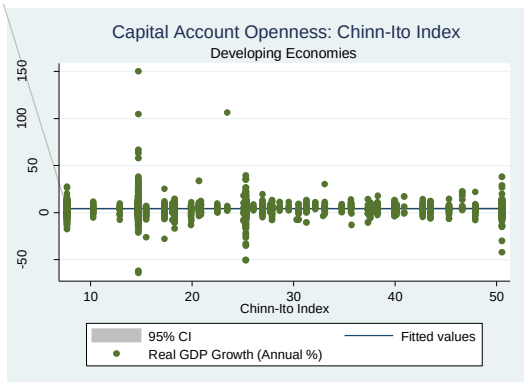


***Figure 30:* Chinn-Ito Index (De Jure Measure of Capital Account Openness)**



Panel 6 illustrates the relationship between the dependent variable of interest used to measure macroeconomic performance and proxy variables for IFI for the developing economies in the dataset. Figure 26 indicates a positive relationship between FDI and growth. Figure 27 illustrates a weak positive relationship between EFPI and growth in

developing economies. Figures 28 and 29 do not illustrate a definitive relationship. Figure 30 shows that for developing countries, both the highest and the lowest growth rates are seen when the financial markets are highly regulated. However, it is important to note that there is more consistency in the growth rate (less volatility) as the developing economies liberalize their financial markets more. The fitted line on the other hand, does not show any distinctive relationship between the two variables of interest.

***Panel 7:* Explorative Data Analysis of Real GDP Growth (Annual %) and IFI (proxy variables) in Transition Economies (1961-2015)**

***Figure 31:* FDI (% of |GDP)**

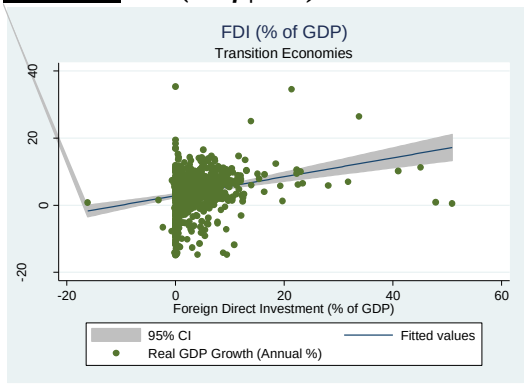


***Figure 32:* EFPI (% of GDP)**

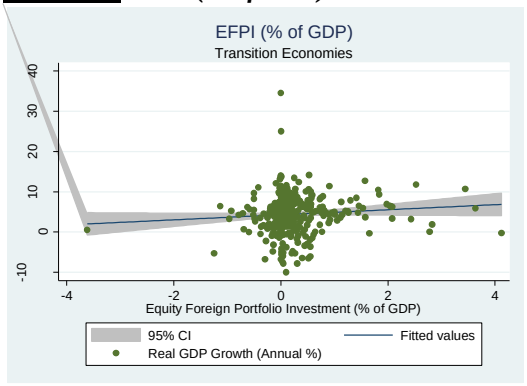


***Figure 33:* Non-Resident Bank Loan (% of GDP)**

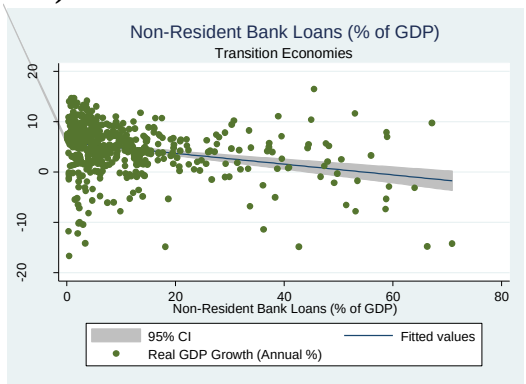


***Figure 34:* Net Financial Account (% of |GDP)**

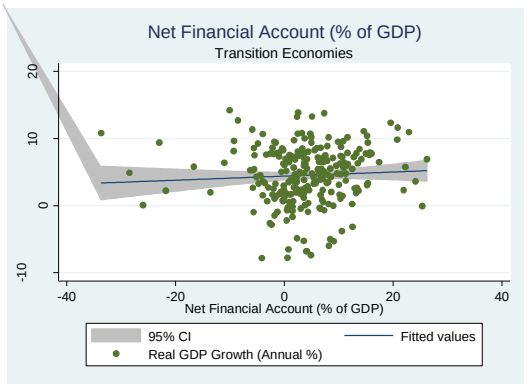
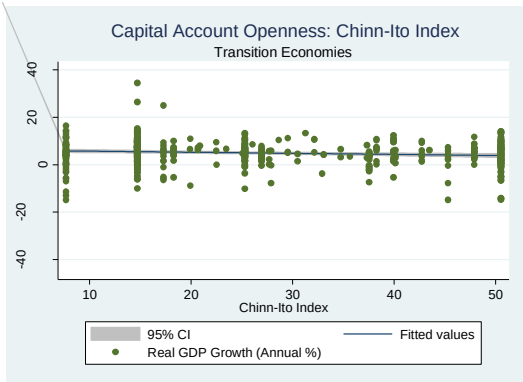


***Figure 35:* Chinn-Ito Index (De Jure Measure of Capital Account Openness)**



Panel 7 illustrates the relationship between the dependent variable of interest used to measure macroeconomic performance and proxy variables for IFI for the transition economies in the dataset. Figure 31 illustrates a relatively strong positive relationship between FDI and growth for transition economies. Figure 32 illustrates a weak relationship between EFPI and growth. Figure 33 and 34 do not exhibit any noticeable relationships. Figure 35 exhibits a very weak negative relationship between capital account openness and growth. However, the highest growth rate for transition economies is observed when the financial markets are highly regulated.

***Panel 8:* Explorative Data Analysis of Real GDP Growth (Annual %) and IFI (proxy variables) in Emerging Market Economies (1961-2015)**

***Figure 36:* FDI (% of |GDP)**

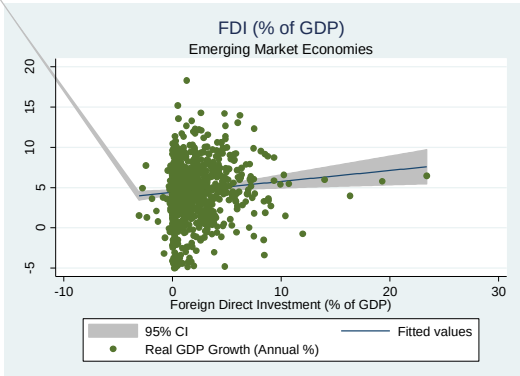


***Figure 37:* EFPI (% of GDP)**

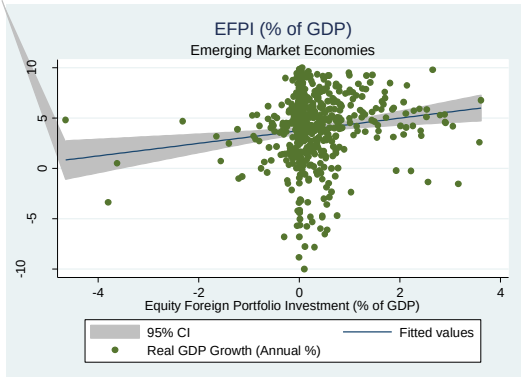


***Figure 38:* Non-Resident Bank Loan (% of GDP)**

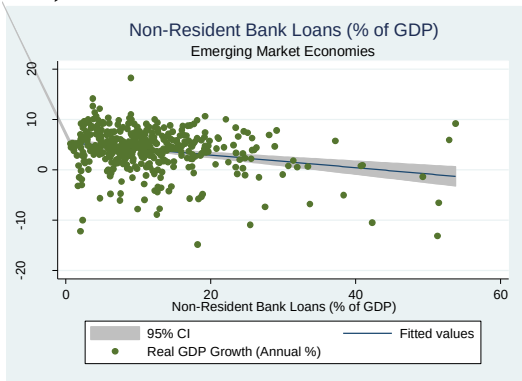


***Figure 39:* Net Financial Account (% of |GDP)**

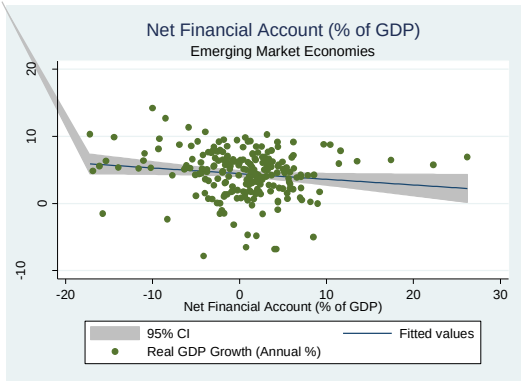
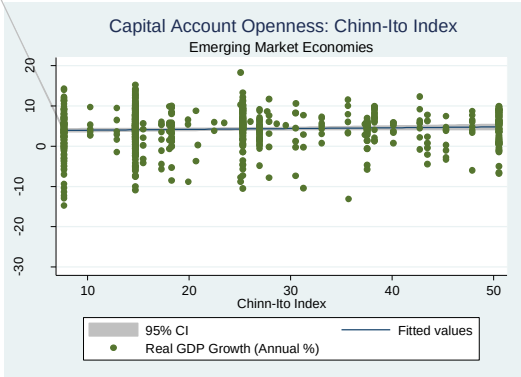


***Figure 40:* Chinn-Ito Index (De Jure Measure of Capital Account Openness)**



Panel 8 illustrates the relationship between the dependent variable of interest used to measure macroeconomic performance and proxy variables for IFI for emerging market economies in the dataset. Figures 36 and 37 exhibit a positive relationship between FDI and growth and EFPI and growth respectively. There is a weak negative relationship between cross-border lending and growth and financial account measure and growth in figures 38 and 39 respectively.

Explorative Data Analysis 3: Quadratic Relationships

This section looks at the quadratic (non-linear relationship in a quadratic line plot) relationship between the dependent variable of interest reflecting macroeconomic performance and the independent variables of interest (proxy variables of international financial integration). This is a backdrop for the threshold regression analysis in the latter sections of this chapter. This would ideally provide a graphic projection of the nonlinear association between the two variables of interest. These graphs are also referenced to in the robustness test 4 section that investigates the quadratic relationship between capital account openness and growth (refer to 'Robustness Test 4: Quadratic Estimations'). Furthermore, and perhaps more importantly, these illustrations provide a rough estimate to the threshold estimations that are carried out in the 'Results' section (these are the final results table for this particular chapter and the LSTR method only assumes single thresholds). One of the limitations of the LSTR model is that it only assumes that there are two regimes, or, there is a single threshold in the regression model. However, this may not be the case at all times. Therefore, the quadratic illustration is in fact a good illustrative measure to understand the single threshold relationship between the key variables of interest.

Panel 9 illustrates the nonlinear relationship between real GDP growth and the proxy variables of IFI for all economies in the dataset. Figure 41 illustrates the relationship between FDI and growth. The curvature has a maximum value at the level where FDI equals 220% of GDP (this is an illogical finding, but, justifiable given the existence of multiple thresholds), where the growth rate equals almost 20%. In the results section one will find that particularly for the FDI variable, there may be multiple thresholds, and thereby nullifying the importance drawing inferences from graphic quadratic illustrations. No definitive inference can be drawn from the relationship between EFPI and growth. Figure 43 illustrates the relationship between non-resident bank loans and growth and shows that it is growth retarding until non-resident bank loans (% of GDP) equals 90% approximately, after which, growth increases. No definitive inference can be drawn for figure 44, there is a naturally decreasing relationship between FA and growth. From figure 45, the relationship between capital account openness and growth is analyzed. This level at which real GDP growth rate peaks is when KAOPEN[24] (parameterized version of the Chinn-Ito index) equals approximately 27-28. If one looks at the econometric analysis in table 22, then the inflexion point is the same as the point found graphically. Furthermore, in table 2, the estimated threshold level of the TAR and the LSTR are close approximates to the one found graphically. This thereby, reiterates the importance of these graphical illustrations for the reader.

[24] Refer to table 1 in the 'Variable Description' to get a better understanding of the manner in which the original Chinn-Ito index has been parameterized. Furthermore, a detailed threshold regression and consequent analysis is carried out in the 'Results' section of 'Deduction 5: Capital Account Openness (Chinn-Ito Index).

***Panel 9:** Nonlinear Relationship between Real GDP Growth (Annual %) and IFI (proxy variables) in All Economies (1961-2015)*

***Figure 41:** FDI (% of |GDP)*

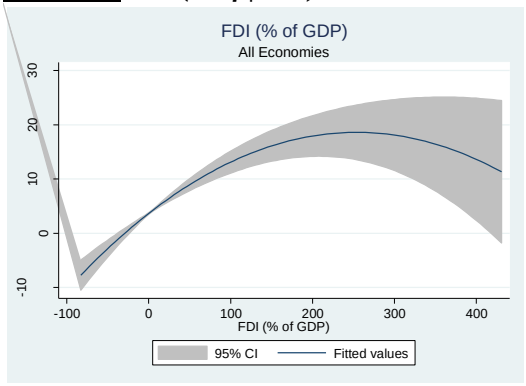


***Figure 42:** EFPI (% of GDP)*

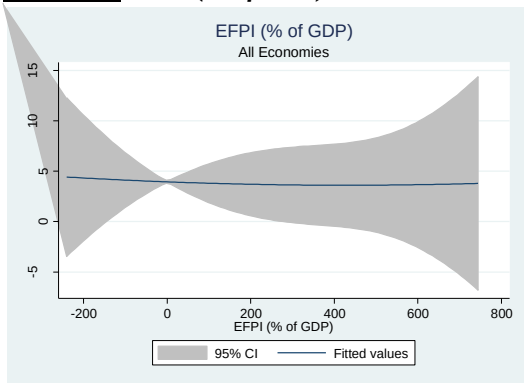


***Figure 43:** Non-Resident Bank Loan (% of GDP)*

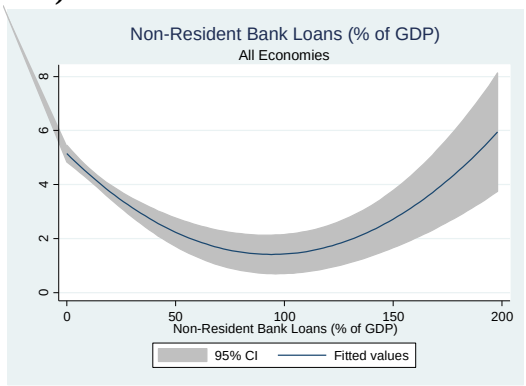


***Figure 44:** Net Financial Account (% of |GDP)*

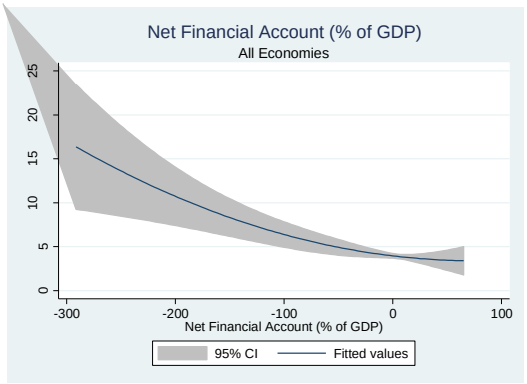
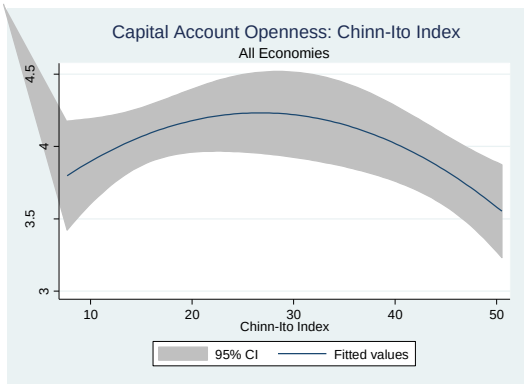


***Figure 45:** Chinn-Ito Index (De Jure Measure of Capital Account Openness)*



Panel 10 illustrates the quadratic plot between real GDP growth and the proxy variables of IFI for developing economies in the dataset. For developing economies, there the minima is not definitive for the relationship between FDI and growth. There appears to be a gradual constant increase in growth rate with increasing FDI levels. However, EFPI has a maxima; it peaks at around 35% of GDP before falling. The relationship between non-resident bank loans and growth suggests that growth is at its lowest (and growth retarding) when cross-border lending equals 100% of GDP. No definitive deduction can be drawn from figure 49. Figure 50 shows the maxima of KAOPEN is approximately 32.

***Panel 10:** Nonlinear Relationship between Real GDP Growth (Annual %) and IFI (proxy variables) in Developing Economies (1961-2015)*

***Figure 46:** FDI (% of |GDP)*

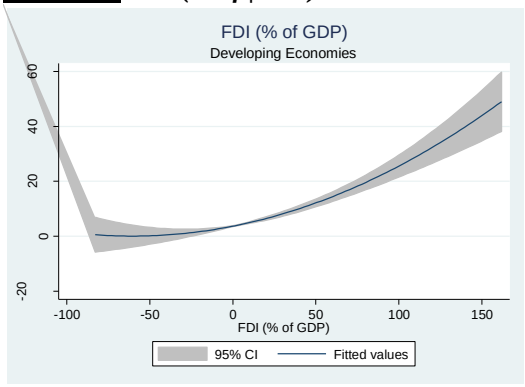


***Figure 47:** EFPI (% of GDP)*

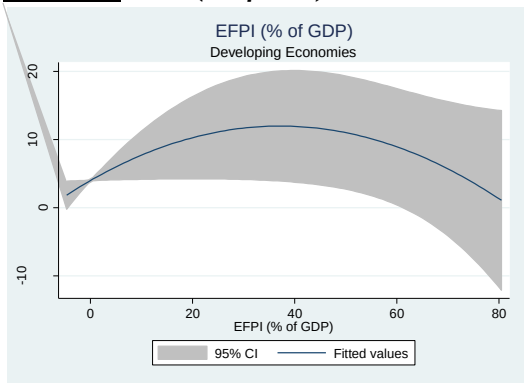


***Figure 48:** Non-Resident Bank Loan (% of GDP)*

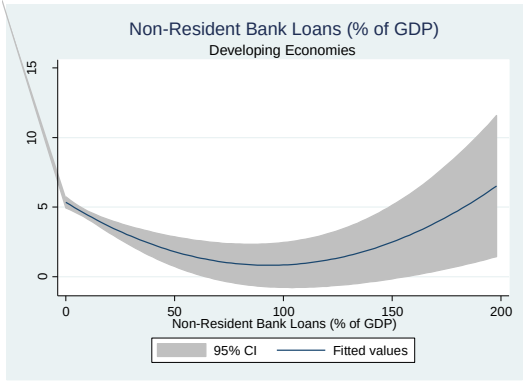


***Figure 49:** Net Financial Account (% of |GDP)*

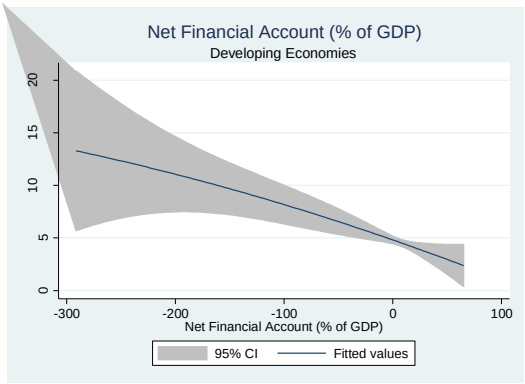
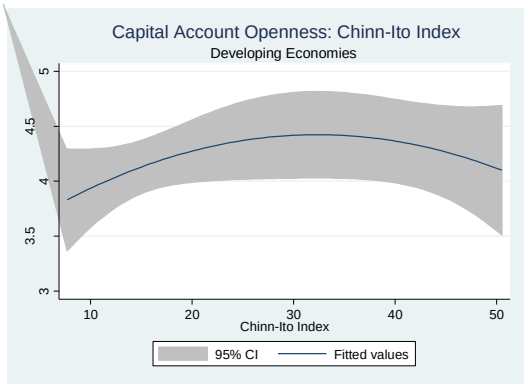


***Figure 50:** Chinn-Ito Index (De Jure Measure of Capital Account Openness)*



Panel 11 illustrates the nonlinear relationship between real GDP growth and the proxy variables of IFI for transition economies in the dataset. The maxima for FDI in figure 51, is at 25% of GDP. Quick reference to table 3 and the transition economies column, it can be seen that the threshold levels of the TAR and LSTR for FDI (in transition economies) are 16 and 19 respectively; therefore, there is not a large difference in the threshold and quadratic estimates. No definitive inference can be drawn from figures 52 and 53. There is a minima for the financial account, which equates to 3-5% of GDP. No definitive inference can be draw from figure 55 as the maxima for capital account openness is not clear.

***Panel 11:** Nonlinear Relationship between Real GDP Growth (Annual %) and IFI (proxy variables) in Transition Economies (1961-2015)*

***Figure 51:** FDI (% of |GDP)*

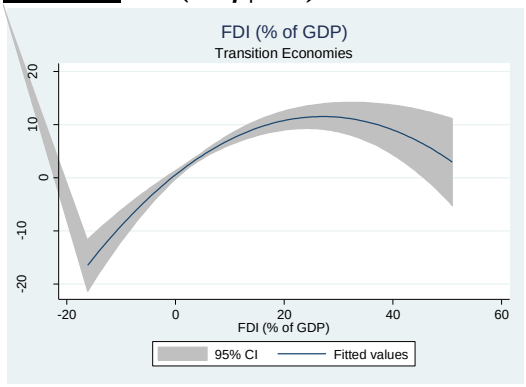


***Figure 52:** EFPI (% of GDP)*

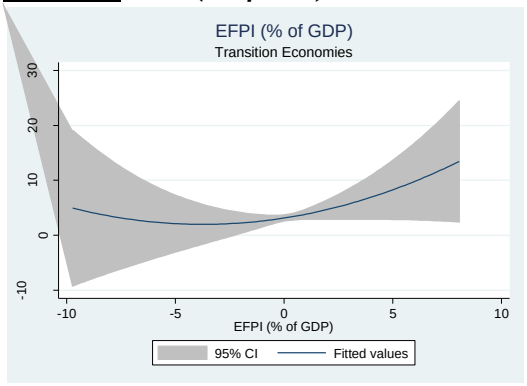


***Figure 53:** Non-Resident Bank Loan (% of GDP)*

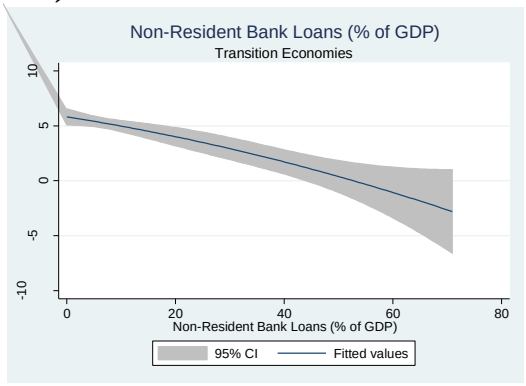


***Figure 54:** Net Financial Account (% of |GDP)*

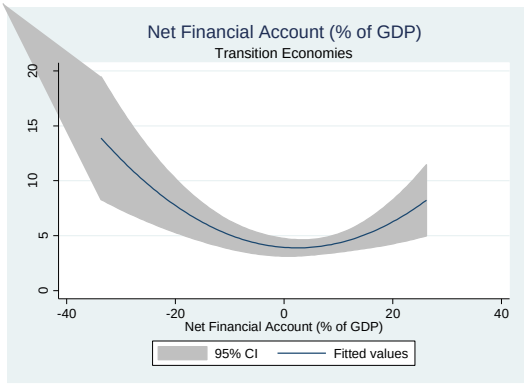
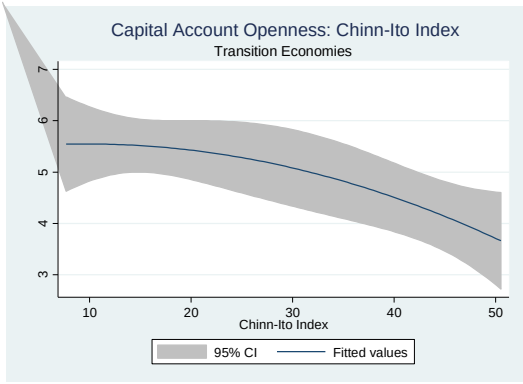


***Figure 55:** Chinn-Ito Index (De Jure Measure of Capital Account Openness)*



Panel 12 illustrates the nonlinear relationship between real GDP growth and the proxy variables of IFI for emerging market economies in the dataset. The maxima for FDI and EFPI are at 20% and 3% of GDP respectively. The maxima for figure 58 (non-resident bank loans and growth) is unclear, however, the relationship is definitely negative i.e. with increasing cross-border lending the growth rate reduces. The minima for figure 59 (financial account and growth) is 7-9% of GDP. The maxima for figure 60, the relationship between capital account openness and growth approximates to 35. This deduction however, contradicts the threshold estimates found in table 2 for emerging market economies, as that is significantly lower.

Panel 12: *Nonlinear Relationship between Real GDP Growth (Annual %) and IFI (proxy variables) in Emerging Market Economies (1961-2015)*

Figure 56: *FDI (% of \|GDP)*

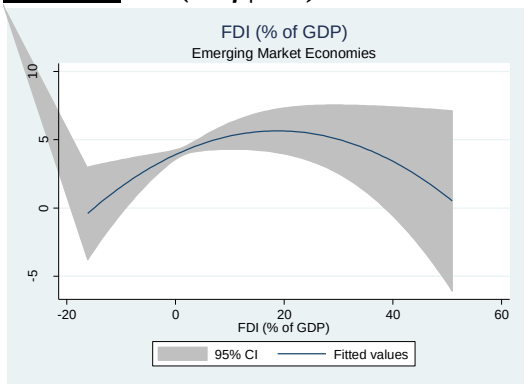


Figure 57: *EFPI (% of GDP)*

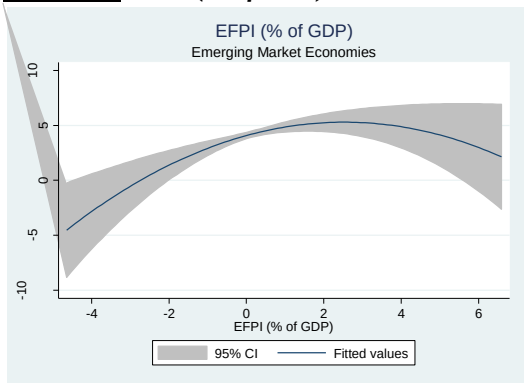


Figure 58: *Non-Resident Bank Loan (% of GDP)*

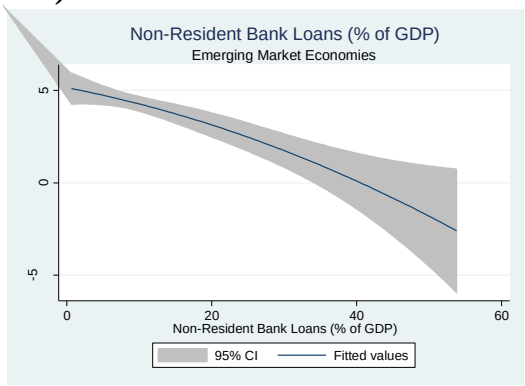


Figure 59: *Net Financial Account (% of \|GDP)*

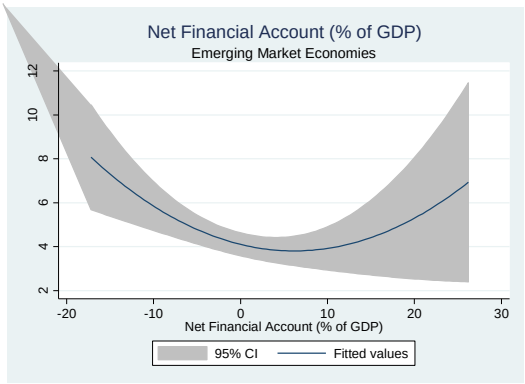
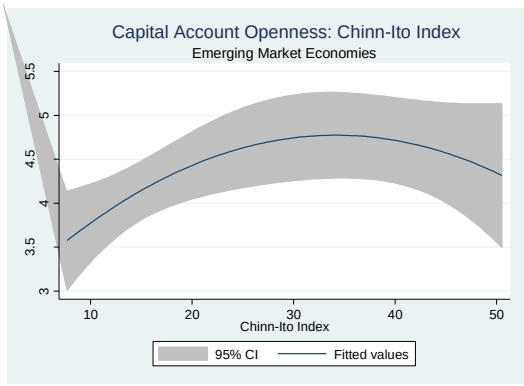


Figure 60: *Chinn-Ito Index (De Jure Measure of Capital Account Openness)*



Appendix 2: Robustness Checks

The prominent robustness checks include the 3-year non-overlapping averages, the quadratic estimations and the bootstrapping technique. The robustness tests are recorded accordingly and include the following:

1. Robustness Test 1: 3-Year Non-Overlapping Averages
2. Robustness Test 2: Lagged IFI Proxy Variables
3. Robustness Test 3: Post-1990 Estimations
4. Robustness Test 4: Quadratic Estimations
5. Robustness Test 5: Bootstrapping

The bootstrapping technique is the final component of the robustness checks section. This is used to validate the results of the LSTR model. Note that the robustness checks are done for all income groups (as well as for all relevant IFI proxy variables).

Robustness Test 1: 3-Year Non-Overlapping Averages

The first robustness check replicates the regression models illustrated in tables 2, 3, 4, 5, and 6 using 3-year non-overlapping averages instead of 5-year non-overlapping averages. Table 7 looks at the relationship between FDI and growth with 3-year non-overlapping averages. There are notably more observations compared to table 3. The distinctive difference is the level of threshold, which appears to be significantly lower than that found in table 3. For instance, the threshold level of LSTR for all economies in table 3 was 55%, however, in table 7 the threshold level is 6%. Table 7 also illustrates that the regression models are all linear and there is a single threshold apart from that of emerging market economies. Furthermore, the coefficients below the threshold and coefficients in the 'low' regime are not drastically different between the two tables. The gamma parameter is also low for almost all the regression models and therefore the LSTR is preferred over the TAR estimated coefficients for analysis. Table 8 looks at the relationship between EFPI and growth with 3-year non-overlapping averages. The threshold levels of the TAR and LSTR are roughly the same (except they are non-zero but vary by only 1-3%). The coefficients of interest are also similar i.e. coefficients for below and above the threshold and for the 'low' and 'high' regime. However, unfortunately, no definitive inference can be drawn for transition economies, as the coefficients are statistically insignificant in table 8 as it was erratic in table 3.

Table 9 looks at the relationship between non-resident bank loans and growth with 3-year non-overlapping averages. There is not a large increase in the number of observations, and the coefficients of interest do not differ significantly either, except for transition economies and especially the coefficient of the 'high' regime, which appears to be an anomaly. The threshold levels for TAR and LSTR are not dissimilar except for the case of transition economies, where the 3-year non-overlapping average sees high threshold levels. Table 10 looks at the relationship between the financial account and growth with 3-year non-overlapping averages. There is a minimal difference in the number of observations. The coefficients of interest are not dissimilar for all economies and the developing economies columns. For emerging market economies, there appears to be an increase in growth above the threshold. This appears to be stark contrast to the results acquired in table 5.

Table 11 looks at the relationship between capital account openness and growth with 3-year non-overlapping averages. The regression results are similar to that acquired in table 2 (5-year non-overlapping averages). Unfortunately, for developing economies, the coefficients of interest are all statistically insignificant (like table 2). The threshold levels are also similar along with the gamma parameters.

***Table 7:* FDI (% of GDP) on Growth** **Robustness Check: 3-Year non-overlapping averages**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.78e-05*** (7.95e-06)*	*-1.50e-05* (8.54e-06)*	*-1.50e-05* (8.57e-06)*	*-0.000149** (5.87e-05)*	*-0.000123** (6.03e-05)*	*-0.000122** (6.03e-05)*	*-0.000217* (0.000111)*	*-0.000176 (0.000108)*	*-0.000193* (0.000106)*	*-0.000223** (9.90e-05)*	*-0.000216** (1.00e-04)*	*-0.000217** (9.99e-05)*
Investment to GDP	*0.131*** (0.0193)*	*0.136*** (0.0199)*	*0.136*** (0.0198)*	*0.113*** (0.0223)*	*0.123*** (0.0229)*	*0.123*** (0.0229)*	*0.0986 (0.0666)*	*0.0914 (0.0658)*	*0.0869 (0.0671)*	*0.134*** (0.0301)*	*0.127*** (0.0301)*	*0.127*** (0.0302)*
Population Growth	*0.560*** (0.0953)*	*0.554*** (0.0872)*	*0.554*** (0.0874)*	*0.456*** (0.165)*	*0.508*** (0.164)*	*0.511*** (0.164)*	*0.394 (0.562)*	*0.355 (0.550)*	*0.344 (0.545)*	*0.716* (0.375)*	*0.727** (0.366)*	*0.727** (0.366)*
Inflation	*-0.00540*** (0.00201)*	*-0.00518*** (0.00200)*	*-0.00517*** (0.00200)*	*-0.00545*** (0.00203)*	*-0.00523*** (0.00202)*	*-0.00523*** (0.00202)*	*-0.00903*** (0.00303)*	*-0.00869*** (0.00304)*	*-0.00901*** (0.00300)*	*-0.00513** (0.00238)*	*-0.00487** (0.00234)*	*-0.00487** (0.00234)*
Literacy Rate	*-0.0112* (0.00575)*	*-0.0161*** (0.00596)*	*-0.0161*** (0.00596)*	*-0.0160* (0.00834)*	*-0.0190** (0.00850)*	*-0.0190** (0.00850)*	*-0.0508* (0.0271)*	*-0.0559** (0.0263)*	*-0.0558** (0.0257)*	*-0.0292** (0.0127)*	*-0.0339*** (0.0129)*	*-0.0338*** (0.0129)*
Life Expectancy	*0.0370** (0.0181)*	*0.0312* (0.0178)*	*0.0313* (0.0178)*	*0.0664*** (0.0212)*	*0.0574*** (0.0208)*	*0.0573*** (0.0208)*	*0.171 (0.204)*	*0.155 (0.200)*	*0.169 (0.206)*	*0.0835* (0.0469)*	*0.0473 (0.0462)*	*0.0479 (0.0462)*
FDI	*0.0946*** (0.0265)*			*0.165*** (0.0479)*			*0.369** (0.170)*			*0.199** (0.0816)*		
$FDI - T \; if \; FDI < T$		*0.327*** (0.0516)*			*0.384*** (0.0729)*			*0.500** (0.196)*			*0.470*** (0.158)*	
$FDI - T \; if \; FDI > T$		*-0.0157 (0.0389)*			*0.0338 (0.0801)*			*-5.497** (2.356)*			*-0.0201 (0.0595)*	
$W^{low}(FDI - c^*)$			*0.316*** (0.0491)*			*0.376*** (0.0689)*			*0.334** (0.136)*			*0.464*** (0.155)*
$W^{high}(FDI - c^*)$			*-0.0106 (0.0380)*			*0.0388 (0.0775)*			*-11.29 (7.378)*			*-0.0178 (0.0587)*
Constant	*-2.004** (0.975)*	*-0.0262 (0.996)*	*-0.123 (0.991)*	*-2.899** (1.150)*	*-0.707 (1.183)*	*-0.824 (1.170)*	*-6.739 (12.94)*	*5.735 (11.79)*	*2.105 (12.18)*	*-3.318 (3.229)*	*2.337 (3.573)*	*2.255 (3.552)*
Observations	1,253	1,253	1,253	820	820	820	148	148	148	186	186	186
R^2	0.256	0.272	0.272	0.259	0.271	0.272	0.375	0.396	0.392	0.421	0.438	0.438
TAR (T) or LSTR (c)*		6	6		6	6		23	24		7	7
LSTR parameter (γ)*			4			*3*			2			7
LM Test (GTD 2005) H0: Linear Model			33.45			33.97			19.20			16.72
p-value nonlinearity			0.0147			0.0156			0.0581			0.0742
LM Test for remaining nonlinearities			23.92			22.15			12.95			13.67
p-value remaining nonlinearity			0.158			0.225			0.451			0.981

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 8:* EFPI (% of GDP) on Growth** **Robustness Check: 3-Year non-overlapping averages**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-3.44e-05****	*-3.86e-05****	*-3.80e-05****	*-4.46e-05*	*-5.04e-05*	*-4.93e-05*	*-0.000243***	*-0.000246***	*-0.000249***	*-0.000266***	*-0.000250****	*-0.000249****
	(8.45e-06)	*(8.50e-06)*	*(8.47e-06)*	*(7.05e-05)*	*(6.90e-05)*	*(6.89e-05)*	*(0.000103)*	*(0.000102)*	*(0.000102)*	*(8.64e-05)*	*(8.79e-05)*	*(8.79e-05)*
Trade to GDP	*0.0120****	*0.0125****	*0.0125****	*0.0200****	*0.0209****	*0.0209****	*0.0112*	*0.0109*	*0.0106*	*0.00381*	*0.00510*	*0.00516*
	(0.00372)	*(0.00376)*	*(0.00376)*	*(0.00655)*	*(0.00653)*	*(0.00653)*	*(0.0114)*	*(0.0115)*	*(0.0115)*	*(0.00496)*	*(0.00506)*	*(0.00507)*
Population Growth	*0.648****	*0.645****	*0.643****	*0.631****	*0.637****	*0.638****	*0.591*	*0.599*	*0.616*	*0.259*	*0.321*	*0.324*
	(0.103)	*(0.107)*	*(0.106)*	*(0.169)*	*(0.168)*	*(0.168)*	*(0.650)*	*(0.652)*	*(0.654)*	*(0.330)*	*(0.330)*	*(0.330)*
Inflation	*-0.00243***	*-0.00242***	*-0.00242***	*-0.00235***	*-0.00232***	*-0.00232***	*-0.0101****	*-0.0101****	*-0.0101****	*-0.00567***	*-0.00562***	*-0.00561***
	(0.00104)	*(0.00103)*	*(0.00103)*	*(0.00102)*	*(0.000999)*	*(0.000999)*	*(0.00282)*	*(0.00283)*	*(0.00283)*	*(0.00234)*	*(0.00234)*	*(0.00233)*
Literacy Rate	*-0.0143***	*-0.0158****	*-0.0157****	*-0.0216****	*-0.0240****	*-0.0239****	*(0.0114)*	*(0.0115)*	*(0.0115)*	*-0.0576****	*-0.0546****	*-0.0545****
	(0.00596)	*(0.00604)*	*(0.00603)*	*(0.00831)*	*(0.00833)*	*(0.00832)*	*-0.0426*	*-0.0429*	*-0.0426*	*(0.0134)*	*(0.0131)*	*(0.0132)*
Life Expectancy	*0.0555****	*0.0565****	*0.0567****	*0.0680****	*0.0699****	*0.0695****	*0.181*	*0.187*	*0.190*	*0.169****	*0.149****	*0.147****
	(0.0194)	*(0.0194)*	*(0.0194)*	*(0.0220)*	*(0.0218)*	*(0.0218)*	*(0.116)*	*(0.117)*	*(0.117)*	*(0.0436)*	*(0.0423)*	*(0.0425)*
$EFPI$	*-0.00243*			*0.116*			*1.338*			*1.275****		
	(0.00408)			*(0.0772)*			*(0.966)*			*(0.341)*		
$EFPI - T\ if\ EFPI < T$		*0.769****			*2.333****			*1.055*			*2.043****	
		(0.200)			*(0.457)*			*(1.523)*			*(0.517)*	
$EFPI - T\ if\ EFPI > T$		*-0.00425*			*-0.0895***			*2.408*			*0.175*	
		(0.00463)			*(0.0354)*			*(2.270)*			*(0.536)*	
$W^{low}(EFPI - c^*)$			*0.830****			*2.300****			*0.774*			*2.009****
			(0.213)			*(0.449)*			*(1.527)*			*(0.491)*
$W^{high}(EFPI - c^*)$			*-0.00384*			*-0.0809***			*-132.1*			*0.189*
			(0.00451)			*(0.0339)*			*(178.2)*			*(0.518)*
Constant	*-0.457*	*0.264*	*0.0583*	*-1.481*	*0.681*	*0.510*	*-5.073*	*-4.347*	*-2.580*	*-3.131*	*-0.244*	*-0.255*
	(1.047)	*(1.051)*	*(1.048)*	*(1.187)*	*(1.202)*	*(1.195)*	*(7.233)*	*(7.498)*	*(9.725)*	*(2.862)*	*(2.720)*	*(2.727)*
Observations	1,590	1,590	1,590	1,048	1,048	1,048	172	172	172	223	223	223
R^2	0.113	0.118	0.118	0.108	0.123	0.123	0.289	0.289	0.291	0.384	0.393	0.394
TAR (T) or LSTR (c)*		1	1		1	1		1	4		1	1
LSTR parameter (γ)*			*15*			*3*			1			*2*
LM Test (GTD 2005) H0: Linear Model			28.42			15.88			12.74			19.59
p-value nonlinearity			0.1029			0.0776			0.0692			0.1547
LM Test for remaining nonlinearities			31.02			17.69			16.11			52265
p-value remaining nonlinearity			0.1733			0.669			0.446			0.341

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 9:* Non-Resident Bank Loans (% of GDP) on Growth Robustness Check: 3-Year non-overlapping averages**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-1.99e-05* *(1.54e-05)*	*-2.00e-05* *(1.53e-05)*	*-1.89e-05* *(1.54e-05)*	*-5.08e-05* *(8.38e-05)*	*-4.32e-05* *(8.47e-05)*	*-3.66e-05* *(8.56e-05)*	*-0.000111* *(0.000107)*	*-0.000174* *(0.000107)*	*-0.000176* *(0.000107)*	*-0.000217*** *(9.76e-05)*	*-0.000192*** *(9.41e-05)*	*-0.000192*** *(9.41e-05)*
Trade to GDP	*0.0201*** *(0.00752)*	*0.0200*** *(0.00746)*	*0.0203*** *(0.00750)*	*0.0226*** *(0.00997)*	*0.0224*** *(0.00983)*	*0.0236*** *(0.0101)*	*0.000917* *(0.0114)*	*-0.000225* *(0.0115)*	*0.000476* *(0.0115)*	*0.00587* *(0.00586)*	*0.00904** *(0.00542)*	*0.00903** *(0.00542)*
Population Growth	*0.837*** *(0.119)*	*0.837*** *(0.119)*	*0.837*** *(0.119)*	*0.824*** *(0.221)*	*0.821*** *(0.221)*	*0.837*** *(0.223)*	*0.540* *(0.627)*	*0.509* *(0.625)*	*0.553* *(0.624)*	*-0.0735* *(0.295)*	*0.00748* *(0.294)*	*0.00769* *(0.294)*
Inflation	*-0.00201*** *(0.000960)*	*-0.00202*** *(0.000963)*	*-0.00200*** *(0.000954)*	*-0.00209*** *(0.000931)*	*-0.00209*** *(0.000944)*	*-0.00203*** *(0.000922)*	*-0.0104*** *(0.00275)*	*-0.0104*** *(0.00276)*	*-0.0103*** *(0.00277)*	*-0.0118*** *(0.00107)*	*-0.0119*** *(0.00104)*	*-0.0119*** *(0.00104)*
Literacy Rate	*-0.00252* *(0.00761)*	*-0.00250* *(0.00761)*	*-0.00250* *(0.00762)*	*-0.00961* *(0.0104)*	*-0.0101* *(0.0105)*	*-0.00988* *(0.0104)*	*-0.0175* *(0.0320)*	*-0.0178* *(0.0319)*	*-0.0165* *(0.0319)*	*-0.0346** *(0.0179)*	*-0.0264* *(0.0171)*	*-0.0264* *(0.0171)*
Life Expectancy	*0.0215* *(0.0220)*	*0.0227* *(0.0225)*	*0.0206* *(0.0221)*	*0.0410** *(0.0239)*	*0.0449** *(0.0244)*	*0.0410** *(0.0240)*	*0.0908* *(0.118)*	*0.0883* *(0.118)*	*0.0917* *(0.118)*	*0.0850** *(0.0471)*	*0.0813** *(0.0460)*	*0.0813** *(0.0460)*
CBL	*-0.0304*** *(0.0116)*			*-0.00752** *(0.00398)*			*-0.0772** *(0.0413)*			*-0.0977*** *(0.0460)*		
$CBL - T \; if \; CBL < T$		*-0.0612* *(0.119)*			*-0.109* *(0.126)*			*-0.0296* *(0.0437)*			*-0.144*** *(0.0296)*	
$CBL - T \; if \; CBL > T$		*-0.0294*** *(0.0112)*			*-0.00678** *(0.00380)*			*-0.823*** *(0.220)*			*1.409*** *(0.208)*	
$W^{low}(CBL - c^*)$			*0.105* *(0.330)*			*0.506* *(0.429)*			*-0.0282* *(0.0442)*			*-0.144*** *(0.0296)*
$W^{high}(CBL - c^*)$			*-0.0300*** *(0.0119)*			*-0.00561* *(0.00413)*			*74.51*** *(19.16)*			*-1.283e+09*** *(1.923e+08)*
Constant	*0.575* *(1.309)*	*0.315* *(1.377)*	*0.510* *(1.313)*	*-0.595* *(1.577)*	*-0.969* *(1.650)*	*-1.188* *(1.692)*	*0.981* *(7.716)*	*-0.363* *(8.325)*	*-1.074* *(8.495)*	*2.869* *(3.577)*	*-4.340* *(3.914)*	*-9.962*** *(4.527)*
Observations	829	829	829	592	592	592	160	160	160	132	132	132
R^2	0.179	0.180	0.180	0.139	0.140	0.141	0.331	0.350	0.352	0.481	0.518	0.518
TAR (T) or LSTR (c)*		5	2		5	0		52	65		48	87
LSTR parameter (γ)*			*5*			*8*			*8*			*6*
LM Test (GTD 2005) H0: Linear Model			32.28			24.56			22.67			19.33
p-value nonlinearity			0.00218			0.0336			0.0474			0.0901
LM Test for remaining nonlinearities			10.44			14.53			18.64			7.870
p-value remaining nonlinearity			0.847			0.338			0.135			0.852

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10.*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the results table. CBL refers to cross-border lending which is non-resident bank loans as a percentage of GDP.

***Table 10:* Financial Account (% of GDP) on Growth Robustness Check: 3-Year non-overlapping averages**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-4.35e-05****	*-4.38e-05****	*-4.37e-05****	*-0.000239***	*-0.000247***	*-0.000247***	*7.75e-05*	*6.07e-05*	*4.94e-05*	*-0.000186*	*-0.000173*	*-0.000173*
	(1.19e-05)	*(1.20e-05)*	*(1.19e-05)*	*(9.29e-05)*	*(9.56e-05)*	*(9.60e-05)*	*(0.000202)*	*(0.000198)*	*(0.000207)*	*(0.000118)*	*(0.000118)*	*(0.000118)*
Trade to GDP	*0.170****	*0.169****	*0.168****	*0.137****	*0.128****	*0.131****	*0.404****	*0.410****	*0.394****	*0.219****	*0.212****	*0.212****
	(0.0227)	*(0.0235)*	*(0.0229)*	*(0.0234)*	*(0.0223)*	*(0.0226)*	*(0.122)*	*(0.120)*	*(0.122)*	*(0.0419)*	*(0.0398)*	*(0.0398)*
Population Growth	*0.409***	*0.404***	*0.396***	*0.619***	*0.579***	*0.576***	*1.186*	*0.863*	*1.339**	*1.234***	*1.308***	*1.307***
	(0.158)	*(0.160)*	*(0.159)*	*(0.252)*	*(0.247)*	*(0.250)*	*(0.737)*	*(0.686)*	*(0.792)*	*(0.537)*	*(0.534)*	*(0.533)*
Inflation	*-0.00220*	*-0.00245*	*-0.00202*	*-0.0178*	*-0.0179*	*-0.0153*	*-0.221***	*-0.218***	*-0.220***	*-0.151***	*-0.151***	*-0.151***
	(0.0382)	*(0.0381)*	*(0.0383)*	*(0.0362)*	*(0.0357)*	*(0.0369)*	*(0.0989)*	*(0.0927)*	*(0.101)*	*(0.0676)*	*(0.0665)*	*(0.0665)*
Literacy Rate	*-0.0160*	*-0.0162*	*-0.0167**	*0.00249*	*-0.000293*	*-0.000668*	*-0.0580*	*-0.0605*	*-0.0524*	*-0.00910*	*-0.00687*	*-0.00689*
	(0.0102)	*(0.0101)*	*(0.0101)*	*(0.0143)*	*(0.0132)*	*(0.0132)*	*(0.0413)*	*(0.0409)*	*(0.0427)*	*(0.0184)*	*(0.0179)*	*(0.0179)*
Life Expectancy	*-0.0314*	*-0.0310*	*-0.0300*	*0.000538*	*0.00600*	*0.00651*	*-0.610***	*-0.653****	*-0.572***	*0.0144*	*0.00427*	*0.00435*
	(0.0290)	*(0.0286)*	*(0.0283)*	*(0.0308)*	*(0.0291)*	*(0.0284)*	*(0.241)*	*(0.242)*	*(0.250)*	*(0.0566)*	*(0.0576)*	*(0.0576)*
FA	*-0.0644****			*-0.0751****			*0.0315*			*0.0238*		
	(0.0214)			*(0.0269)*			*(0.148)*			*(0.0590)*		
$FA - T \; if \; FA < T$		*-0.0666****			*-0.111***			*12.64*			*-0.0190*	
		(0.0249)			*(0.0505)*			*(12.62)*			*(0.0596)*	
$FA - T \; if \; FA > T$		*-0.0545*			*-0.0463*			*-0.0278*			*0.242**	
		(0.0587)			*(0.0321)*			*(0.148)*			*(0.123)*	
$W^{low}(FA - c^*)$			*-0.0765***			*-0.124***			*0.0127*			*-0.0185*
			(0.0381)			*(0.0607)*			*(0.148)*			*(0.0596)*
$W^{high}(FA - c^*)$			*-0.358*			*-1.140*			*-10.64**			*0.241**
			(0.760)			*(1.066)*			*(5.626)*			*(0.124)*
Constant	*3.378***	*2.337*	*-0.820*	*1.303*	*0.828*	*-5.495*	*43.53***	*47.37***	*41.01**	*-0.707*	*-0.283*	*-0.282*
	(1.609)	*(1.653)*	*(2.708)*	*(1.851)*	*(1.877)*	*(4.040)*	*(19.27)*	*(19.11)*	*(21.29)*	*(4.550)*	*(4.478)*	*(4.479)*
Observations	382	382	382	248	248	248	52	52	52	58	58	58
R^2	0.313	0.313	0.314	0.240	0.245	0.244	0.398	0.420	0.408	0.549	0.563	0.563
TAR (T) or LSTR (c)*		16	53		5	51		1	19		7	7
LSTR parameter (γ)*			*1*			1			*7*			15
LM Test (GTD 2005) H0: Linear Model			19.85			22.02			21.66			22.50
p-value nonlinearity			0.022			0.0112			0.0233			0.0187
LM Test for remaining nonlinearities			9.713			6.401			6.88			6.10
p-value remaining nonlinearity			0.374			0.476			0.146			0.649

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 11:* De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth Robustness Check: 3-Year non-overlapping averages**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-4.76e-05*** (9.24e-06)*	*-4.43e-05*** (9.28e-06)*	*-4.43e-05*** (9.29e-06)*	*-0.000118* (6.32e-05)*	*-0.000120* (6.34e-05)*	*-0.000120* (6.34e-05)*	*-0.000347* (0.000100)*	*-0.000363*** (0.000103)*	*-0.000335*** (9.93e-05)*	*-0.00020** (8.09e-05)*	*-0.000214** (7.88e-05)*	*-0.000213*** (7.89e-05)*
Invest to GDP	*0.0375*** (0.00942)*	*0.0367*** (0.00920)*	*0.0365*** (0.00921)*	*0.0384*** (0.0108)*	*0.0385*** (0.0107)*	*0.0386*** (0.0107)*	*0.0509 (0.0377)*	*0.0531 (0.0381)*	*0.0534 (0.0374)*	*0.0268 (0.0378)*	*0.0296 (0.0374)*	*0.0298 (0.0374)*
NFA to GDP	*0.498*** (0.162)*	*0.509*** (0.159)*	*0.509*** (0.159)*	*0.503** (0.213)*	*0.510** (0.209)*	*0.510** (0.209)*	*1.303 (0.887)*	*1.113 (0.888)*	*1.187 (0.873)*	*3.114** (1.208)*	*3.031** (1.211)*	*3.032** (1.211)*
FDI	*0.178*** (0.0408)*	*0.181*** (0.0407)*	*0.181*** (0.0407)*	*0.252*** (0.0553)*	*0.253*** (0.0552)*	*0.253*** (0.0552)*	*0.258* (0.136)*	*0.257* (0.135)*	*0.254* (0.134)*	*0.187*** (0.0613)*	*0.196*** (0.0598)*	*0.195*** (0.0599)*
Population Growth	*0.436*** (0.108)*	*0.455*** (0.107)*	*0.457*** (0.107)*	*0.311* (0.168)*	*0.314* (0.167)*	*0.314* (0.167)*	*0.568 (0.414)*	*0.568 (0.416)*	*0.593 (0.412)*	*0.126 (0.304)*	*0.109 (0.300)*	*0.109 (0.300)*
Inflation	*-0.00162*** (0.000509)*	*-0.00161*** (0.000504)*	*-0.00161*** (0.000504)*	*-0.00152*** (0.000466)*	*-0.00151*** (0.000466)*	*-0.00151*** (0.000466)*	*-0.0205** (0.0102)*	*-0.0194** (0.00980)*	*-0.0175* (0.00901)*	*-0.00275** (0.00122)*	*-0.00263** (0.00101)*	*-0.00262** (0.00102)*
Literacy Rate	*-0.00495 (0.00540)*	*-0.00459 (0.00536)*	*-0.00458 (0.00536)*	*-0.0109 (0.00777)*	*-0.0104 (0.00777)*	*-0.0104 (0.00777)*	*-0.0253 (0.0203)*	*-0.0234 (0.0201)*	*-0.0295 (0.0192)*	*-0.0362*** (0.0111)*	*-0.0398*** (0.0110)*	*-0.0398*** (0.0110)*
Trade to GDP	*0.00267 (0.00639)*	*0.00136 (0.00637)*	*0.00143 (0.00637)*	*0.0127 (0.00890)*	*0.0117 (0.00894)*	*0.0116 (0.00894)*	*0.0180 (0.0222)*	*0.0201 (0.0225)*	*0.0165 (0.0221)*	*0.00764 (0.0115)*	*0.00500 (0.0115)*	*0.00511 (0.0115)*
$KAOP$	*-0.00879 (0.00751)*			*0.00440 (0.00922)*			*0.0178 (0.0293)*			*0.0507*** (0.0152)*		
$KAOP - T \; if \; KAOP < T$		*0.0766*** (0.0267)*			*0.0381 (0.0263)*			*0.0603 (0.0502)*			*0.285*** (0.0785)*	
$KAOP - T \; if \; KAOP > T$		*-0.0369*** (0.0106)*			*-0.0140 (0.0152)*			*-0.0351 (0.0689)*			*0.0286* (0.0164)*	
$W^{low}(KAOP - c^*)$			*0.0656*** (0.0238)*			*0.0412 (0.0282)*			*0.787* (0.400)*			*0.281*** (0.0773)*
$W^{high}(KAOP - c^*)$			*-0.0371*** (0.0106)*			*-0.0130 (0.0146)*			*0.0412 (0.0306)*			*0.0296* (0.0163)*
Constant	*3.208*** (0.417)*	*3.549*** (0.441)*	*3.515*** (0.441)*	*2.997*** (0.611)*	*3.397*** (0.681)*	*3.387*** (0.675)*	*5.896*** (2.026)*	*6.794*** (2.253)*	*5.150** (2.021)*	*5.790*** (1.235)*	*7.088*** (1.290)*	*7.056*** (1.290)*
Observations	1,369	1,369	1,369	902	902	902	144	144	144	209	209	209
R^2	0.161	0.169	0.168	0.169	0.171	0.171	0.290	0.294	0.304	0.327	0.353	0.353
TAR (T) or LSTR (c)*		22	23		24	23		33	10		15	15
LSTR parameter (γ)*			13			*10*			2			15
LM Test (GTD 2005) H0: Linear Model			48.96			37.67			15.60			20.33
p-value nonlinearity			0.00126			0.0276			0.0552			0.0342
LM Test for remaining nonlinearities			20.52			11.80			14.35			17.12
p-value remaining nonlinearity			0.610			0.973			0.991			0.541

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

Robustness Test 2: Lagged IFI Proxy Variables

Robustness test 2 looks at the relationship between the lagged IFI proxy variables on growth in order to check for endogeneity[25] of IFI. The justification for selecting this as a robustness check is that there are some short lived shocks in the de facto financial flows (refer to historical trends of EFPI and NRBL). However, despite the fact that FDI has been included, we cannot take the results for this seriously due to the problem of endogeneity. However, the selection of this robustness test is justifiable for EFPI and CBL. Table 12 looks at the relationship between lagged FDI and growth. The results in table 12 do not signify anything of notable importance. It reiterates the point that there are multiple thresholds that is unaccounted for by the LSTR. The coefficients for the 'low' and 'high' regime are different for all economies, in table 3, there is a large increment in the growth rate when the economy moves from low to high regime, but in table 12, it is in fact negative (statistically significant at 1%). The threshold level also appears to be low for emerging market economies in table 12 compared to table 3.

Table 13 looks at the relationship between lagged EFPI and growth. The threshold levels are similar; they are relatively low at around 0-2%. For all the country groups, the coefficients below the threshold tend to be positive (most are statistically significant) which implies that there is a definitive increase in the growth rate up until the threshold. However, one of the limitations of these regression models are that most of them, with the exception of the emerging market economies, are linear. Therefore, only the OLS estimations should be accounted for, but they are statistically insignificant except for the case of emerging market economies. Table 14 looks at the relationship between lagged values of non-resident bank loans and growth. The threshold values of the TAR and LSTR are drastically different between tables 14 and 4 for transition and emerging market economies. However, this is not to be taken into consideration because the models are linear and interpreting the coefficients of TAR and LSTR is redundant. The coefficients of interest for all economies columns are similar to table 14 for the OLS, TAR, and LSTR estimations.

Table 15 looks at the relationship between lagged financial account (% of GDP) values and growth. The regression models are all linear other than for emerging market economies; however, the coefficients of interest are all statistically insignificant for these country groups. For all economies and developing economies, increase in FA results in a decrease in growth levels. This inference is the same as that drawn in table 6. Table 16 looks at the relationship between lagged values of capital account openness and growth. The results are not drastically different from those acquired in table 6. The only additional component that can be taken from this table that was unavailable in the previous robustness tests or the final results table is the estimated TAR coefficients above the threshold for developing economies. The threshold level is 47 (this indicates a highly liberalized financial market). The coefficient above this threshold is -0.278 (statistically significant at 1%). This is an interesting result, signifying the impact of financially liberalized markets in developing economies and the risks associated to the macroeconomic conditions.

[25] It is acceptable to use lagged values as robustness check for financial flows if they are not serially correlated.

Table 12: FDI (% of GDP) on Growth ***Robustness Check: Lagged IFI Proxy Variable***												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.78e-05*** *(7.77e-06)*	*-2.06e-05** *(8.62e-06)*	*-3.34e-05*** *(7.71e-06)*	*-0.000158*** *(5.61e-05)*	*-0.000193*** *(5.64e-05)*	*-0.000192** *(5.61e-05)*	*-0.000203** *(0.000111)*	*-0.000211** *(0.000113)*	*-0.000212** *(0.000113)*	*-0.000181** *(9.57e-05)*	*-0.000146* *(9.65e-05)*	*-0.000147* *(9.64e-05)*
Investment to GDP	*0.133*** *(0.0178)*	*0.135*** *(0.0188)*	*0.114*** *(0.0123)*	*0.114*** *(0.0192)*	*0.0936*** *(0.0149)*	*0.0933*** *(0.0150)*	*0.116** *(0.0678)*	*0.121** *(0.0698)*	*0.124** *(0.0698)*	*0.146*** *(0.0306)*	*0.140*** *(0.0295)*	*0.141*** *(0.0295)*
Population Growth	*0.561*** *(0.0956)*	*0.556*** *(0.0912)*	*0.561*** *(0.0993)*	*0.461*** *(0.166)*	*0.417** *(0.166)*	*0.416** *(0.166)*	*0.306* *(0.559)*	*0.297* *(0.558)*	*0.292* *(0.557)*	*0.606* *(0.382)*	*0.466* *(0.359)*	*0.468* *(0.360)*
Inflation	*-0.00536*** *(0.00201)*	*-0.00515*** *(0.00198)*	*-0.00540*** *(0.00200)*	*-0.00534*** *(0.00201)*	*-0.00549*** *(0.00203)*	*-0.00548*** *(0.00203)*	*-0.00932*** *(0.00301)*	*-0.00959*** *(0.00304)*	*-0.00960*** *(0.00303)*	*-0.00529** *(0.00244)*	*-0.00478** *(0.00244)*	*-0.00479** *(0.00245)*
Literacy Rate	*-0.0109** *(0.00568)*	*-0.0143** *(0.00603)*	*-0.0103** *(0.00570)*	*-0.0166** *(0.00832)*	*-0.0148** *(0.00827)*	*-0.0151** *(0.00823)*	*-0.0518** *(0.0264)*	*-0.0518** *(0.0264)*	*-0.0518** *(0.0264)*	*-0.0284** *(0.0127)*	*-0.0379*** *(0.0130)*	*-0.0373*** *(0.0129)*
Life Expectancy	*0.0363** *(0.0177)*	*0.0330** *(0.0176)*	*0.0450*** *(0.0171)*	*0.0674*** *(0.0204)*	*0.0808*** *(0.0199)*	*0.0807*** *(0.0199)*	*0.109* *(0.202)*	*0.108* *(0.204)*	*0.106* *(0.204)*	*0.0963** *(0.0482)*	*0.0394* *(0.0428)*	*0.0419* *(0.0428)*
FDI	*0.0921*** *(0.0333)*			*0.184*** *(0.0541)*			*0.271* *(0.194)*			*0.0427* *(0.0987)*		
$FDI - T \; if \; FDI < T$		*0.337*** *(0.0765)*			*0.0984** *(0.0394)*			*0.187* *(0.144)*			*2.070*** *(0.707)*	
$FDI - T \; if \; FDI > T$		*0.0276* *(0.0498)*			*1.180*** *(0.367)*			*0.582* *(0.843)*			*-0.0252* *(0.0751)*	
$W^{low}(FDI - c^*)$			*0.0702** *(0.0326)*			*0.108*** *(0.0392)*			*0.225* *(0.145)*			*2.003*** *(0.691)*
$W^{high}(FDI - c^*)$			*-5.57*** *(9.924)*			*1.080*** *(0.335)*			*1.685* *(2.474)*			*-0.0190* *(0.0769)*
Constant	*-2.012** *(0.974)*	*-0.726* *(0.991)*	*0.736* *(1.662)*	*-2.992*** *(1.154)*	*-0.598* *(1.460)*	*-0.451* *(1.435)*	*-2.238* *(12.53)*	*1.832* *(11.94)*	*4.568* *(12.24)*	*-4.119* *(3.325)*	*1.243* *(3.329)*	*0.952* *(3.306)*
Observations	1,253	1,253	1,253	820	820	820	148	148	148	186	186	186
R^2	0.256	0.265	0.271	0.268	0.294	0.295	0.354	0.359	0.362	0.402	0.438	0.437
TAR (T) or LSTR (c)*		4	40		25	24		20	28		1	1
LSTR parameter (γ)*			5			*2*			1			15
LM Test (GTD 2005) H0: Linear Model			34.49			28.85			18.19			14.50
p-value nonlinearity			0.0110			0.0502			0.313			0.696
LM Test for remaining nonlinearities			33.11			59.97			277.3			20.48
p-value remaining nonlinearity			0.0162			2.07e-06			0			0.306

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 13:* EFPI (% of GDP) on Growth Robustness Check: Lagged IFI Proxy Variable**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-3.39e-05****	*-3.29e-05****	*-3.39e-05****	*-4.21e-05*	*-5.31e-05*	*-5.31e-05*	*-0.000244***	*-0.000248***	*-0.000248***	*-0.000264***	*-0.000248****	*-0.000247****
	(8.43e-06)	*(8.39e-06)*	*(8.39e-06)*	*(7.05e-05)*	*(7.06e-05)*	*(7.06e-05)*	*(0.000103)*	*(0.000103)*	*(0.000103)*	*(8.45e-05)*	*(8.41e-05)*	*(8.41e-05)*
Trade to GDP	*0.0121****	*0.0123****	*0.0126****	*0.0202****	*0.0206****	*0.0206****	*0.0109*	*0.0101*	*0.0101*	*0.00349*	*0.00446*	*0.00441*
	(0.00373)	*(0.00374)*	*(0.00375)*	*(0.00655)*	*(0.00655)*	*(0.00655)*	*(0.0114)*	*(0.0115)*	*(0.0115)*	*(0.00484)*	*(0.00491)*	*(0.00490)*
Population Growth	*0.648****	*0.646****	*0.648****	*0.631****	*0.641****	*0.642****	*0.592*	*0.623*	*0.623*	*0.281*	*0.351*	*0.353*
	(0.103)	*(0.103)*	*(0.104)*	*(0.169)*	*(0.169)*	*(0.169)*	*(0.650)*	*(0.655)*	*(0.655)*	*(0.332)*	*(0.334)*	*(0.334)*
Inflation	*-0.00243***	*-0.00243***	*-0.00242***	*-0.00236***	*-0.00233***	*-0.00233***	*-0.0101****	*-0.0101****	*-0.0101****	*-0.00573***	*-0.00568***	*-0.00568***
	(0.00104)	*(0.00104)*	*(0.00103)*	*(0.00102)*	*(0.00101)*	*(0.00101)*	*(0.00282)*	*(0.00283)*	*(0.00283)*	*(0.00235)*	*(0.00234)*	*(0.00234)*
Literacy Rate	*-0.0145***	*-0.0143***	*-0.0149***	*-0.0214***	*-0.0227****	*-0.0227****	*-0.0421*	*-0.0422*	*-0.0422*	*-0.0551****	*-0.0511****	*-0.0510****
	(0.00596)	*(0.00596)*	*(0.00596)*	*(0.00832)*	*(0.00832)*	*(0.00832)*	*(0.0341)*	*(0.0341)*	*(0.0341)*	*(0.0135)*	*(0.0134)*	*(0.0134)*
Life Expectancy	*0.0557****	*0.0560****	*0.0557****	*0.0679****	*0.0688****	*0.0687****	*0.179*	*0.191*	*0.191*	*0.166****	*0.140****	*0.140****
	(0.0194)	*(0.0194)*	*(0.0194)*	*(0.0220)*	*(0.0219)*	*(0.0219)*	*(0.117)*	*(0.118)*	*(0.118)*	*(0.0460)*	*(0.0455)*	*(0.0455)*
$EFPI$	*-0.00410*			*0.0370*			*1.308*			*0.986****		
	(0.00530)			*(0.0459)*			*(1.102)*			*(0.357)*		
$EFPI - T\ if\ EFPI < T$		*0.793****			*1.739****			*0.844*			*1.860****	
		(0.296)			*(0.477)*			*(1.398)*			*(0.473)*	
$EFPI - T\ if\ EFPI > T$		*-0.00473*			*-0.0453****			*4.166***			*-0.0131*	
		(0.00548)			*(0.0144)*			*(1.850)*			*(0.422)*	
$W^{low}(EFPI - c^*)$			*0.980****			*1.716****			*0.850*			*1.838****
			(0.311)			*(0.466)*			*(1.393)*			*(0.461)*
$W^{high}(EFPI - c^*)$			*-0.00458*			*-0.0448****			*4.148***			*-0.0168*
			(0.00546)			*(0.0143)*			*(1.833)*			*(0.421)*
Constant	*-0.469*	*-0.501*	*-0.499*	*-1.487*	*0.148*	*0.125*	*-4.940*	*-4.836*	*-4.830*	*-3.033*	*0.00101*	*-0.00799*
	(1.048)	*(1.047)*	*(1.048)*	*(1.190)*	*(1.217)*	*(1.214)*	*(7.275)*	*(7.512)*	*(7.509)*	*(2.968)*	*(2.855)*	*(2.851)*
Observations	1,589	1,589	1,589	1,047	1,047	1,047	172	172	172	223	223	223
R^2	0.113	0.115	0.116	0.108	0.115	0.116	0.287	0.289	0.289	0.369	0.380	0.380
TAR (T) or LSTR (c)*		0	0		1	1		1	1		1	1
LSTR parameter (γ)*			*15*			*10*			15			*4*
LM Test (GTD 2005) H0: Linear Model			31.85			15.55			17.88			17.58
p-value nonlinearity			0.0606			0.795			0.331			0.675
LM Test for remaining nonlinearities			32.85			26.83			17.97			10178
p-value remaining nonlinearity			0.0479			0.177			0.326			0

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 14:* Non-Resident Bank Loans (% of GDP) on Growth Robustness Check: Lagged IFI Proxy Variable**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-5.48e-06* *(1.59e-05)*	*-5.59e-06* *(1.60e-05)*	*-4.74e-06* *(1.61e-05)*	*-8.25e-05* *(8.82e-05)*	*-1.19e-05* *(8.80e-05)*	*-4.56e-05* *(9.23e-05)*	*-5.08e-05* *(9.71e-05)*	*-8.83e-05* *(9.60e-05)*	*-9.36e-05* *(9.63e-05)*	*-0.000184** *(9.72e-05)*	*-0.000187** *(9.80e-05)*	*-0.000185** *(9.81e-05)*
Trade to GDP	*0.0225**** *(0.00769)*	*0.0224**** *(0.00778)*	*0.0226**** *(0.00772)*	*0.0223*** *(0.0113)*	*0.0246*** *(0.0111)*	*0.0241*** *(0.0114)*	*0.00252* *(0.0101)*	*0.00141* *(0.0101)*	*0.00139* *(0.0101)*	*0.00790* *(0.00478)*	*0.00783* *(0.00487)*	*0.00812** *(0.00488)*
Population Growth	*0.719**** *(0.119)*	*0.718**** *(0.119)*	*0.720**** *(0.119)*	*0.581**** *(0.199)*	*0.569**** *(0.194)*	*0.618**** *(0.203)*	*0.592* *(0.482)*	*0.555* *(0.483)*	*0.578* *(0.481)*	*-0.0182* *(0.291)*	*-0.0659* *(0.306)*	*-0.0423* *(0.300)*
Inflation	*0.00123* *(0.000991)*	*0.00127* *(0.000996)*	*0.00124* *(0.000992)*	*0.000458* *(0.00130)*	*0.00192** *(0.00106)*	*0.00107* *(0.00117)*	*-0.0138*** *(0.00649)*	*-0.0144*** *(0.00655)*	*-0.0144*** *(0.00652)*	*-0.0124*** *(0.00563)*	*-0.0127*** *(0.00572)*	*-0.0125*** *(0.00571)*
Literacy Rate	*0.00256* *(0.00741)*	*0.00257* *(0.00741)*	*0.00262* *(0.00744)*	*-0.00248* *(0.0101)*	*-0.00473* *(0.0100)*	*-0.00286* *(0.0101)*	*0.00552* *(0.0284)*	*0.00509* *(0.0285)*	*0.00552* *(0.0284)*	*-0.0129* *(0.0160)*	*-0.0194* *(0.0183)*	*-0.0179* *(0.0185)*
Life Expectancy	*-0.00123* *(0.0225)*	*-0.000144* *(0.0232)*	*-0.00189* *(0.0228)*	*0.0114* *(0.0236)*	*0.0240* *(0.0234)*	*0.0152* *(0.0232)*	*-0.0381* *(0.111)*	*-0.0471* *(0.112)*	*-0.0460* *(0.112)*	*0.0673* *(0.0439)*	*0.0684* *(0.0436)*	*0.0681* *(0.0437)*
CBL	*-0.0521**** *(0.0119)*			*-0.00835** *(0.00438)*			*-0.123**** *(0.0276)*			*-0.145**** *(0.0244)*		
$CBL - T\ if\ CBL < T$		*-0.152* *(0.244)*			*-0.0953**** *(0.0226)*			*-0.0925**** *(0.0313)*			*0.112* *(0.246)*	
$CBL - T\ if\ CBL > T$		*-0.0510**** *(0.0124)*			*0.00453* *(0.00407)*			*-0.661**** *(0.191)*			*-0.157**** *(0.0250)*	
$W^{low}(CBL - c^*)$			*0.112* *(0.355)*			*1.225*** *(0.558)*			*-0.0865**** *(0.0329)*			*0.182* *(0.352)*
$W^{high}(CBL - c^*)$			*-0.0515**** *(0.0118)*			*-0.00454* *(0.00400)*			*25.08**** *(8.346)*			*-0.148**** *(0.0248)*
Constant	*2.030* *(1.330)*	*1.772* *(1.369)*	*1.903* *(1.329)*	*1.583* *(1.594)*	*-2.250* *(1.973)*	*0.102* *(1.813)*	*8.579* *(7.571)*	*4.108* *(8.284)*	*3.269* *(8.456)*	*2.529* *(3.434)*	*2.489* *(3.637)*	*2.298* *(3.524)*
Observations	728	728	728	519	519	519	142	142	142	115	115	115
R^2	0.185	0.185	0.185	0.092	0.125	0.105	0.248	0.263	0.266	0.295	0.301	0.300
TAR (T) or LSTR (c)*		3	2		37	0		56	68		5	4
LSTR parameter (γ)*			*6*			*10*			*7*			*4*
LM Test (GTD 2005) *H0: Linear Model*			22.08			11.27			8.978			15.33
p-value nonlinearity			0.0367			0.506			0.705			0.224
LM Test for remaining nonlinearities			17.58			6.844			7.575			7.865
p-value remaining nonlinearity			0.129			0.868			0.817			0.796

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the results table. CBL refers to cross-border lending which is non-resident bank loans as a percentage of GDP.

***Table 15:* Financial Account (% of GDP) on Growth Robustness Check: Lagged IFI Proxy Variable**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-4.30e-05****	*-4.25e-05****	*-4.26e-05****	*-0.000237****	*-0.000236***	*-0.000236***	*-3.45e-05*	*-3.27e-05*	*-4.70e-05*	*-0.000176*	*-0.000174*	*-0.000166*
	(1.18e-05)	*(1.18e-05)*	*(1.18e-05)*	*(9.10e-05)*	*(9.26e-05)*	*(9.25e-05)*	*(0.000172)*	*(0.000168)*	*(0.000165)*	*(0.000117)*	*(0.000120)*	*(0.000117)*
Trade to GDP	*0.171****	*0.176****	*0.176****	*0.134****	*0.135****	*0.135****	*0.483****	*0.493****	*0.455****	*0.215****	*0.216****	*0.209****
	(0.0220)	*(0.0224)*	*(0.0226)*	*(0.0222)*	*(0.0222)*	*(0.0227)*	*(0.105)*	*(0.0992)*	*(0.0953)*	*(0.0413)*	*(0.0406)*	*(0.0405)*
Population Growth	*0.394***	*0.425****	*0.424****	*0.655****	*0.658****	*0.660****	*1.075*	*0.845*	*0.812*	*1.069**	*1.052**	*1.089**
	(0.155)	*(0.161)*	*(0.160)*	*(0.251)*	*(0.249)*	*(0.251)*	*(0.757)*	*(0.764)*	*(0.759)*	*(0.561)*	*(0.600)*	*(0.575)*
Inflation	*-0.00261*	*-0.00145*	*-0.00329*	*-0.0188*	*-0.0188*	*-0.0190*	*-0.229***	*-0.205***	*-0.199***	*-0.147***	*-0.146***	*-0.148***
	(0.0377)	*(0.0380)*	*(0.0377)*	*(0.0357)*	*(0.0358)*	*(0.0361)*	*(0.0910)*	*(0.0947)*	*(0.0974)*	*(0.0664)*	*(0.0675)*	*(0.0666)*
Literacy Rate	*-0.0180**	*-0.0165*	*-0.0161*	*0.00174*	*0.00194*	*0.00215*	*-0.0617*	*-0.0654*	*-0.0661**	*-0.00923*	*-0.00986*	*-0.00926*
	(0.0104)	*(0.0106)*	*(0.0105)*	*(0.0146)*	*(0.0140)*	*(0.0142)*	*(0.0388)*	*(0.0391)*	*(0.0361)*	*(0.0181)*	*(0.0185)*	*(0.0185)*
Life Expectancy	*-0.0303*	*-0.0337*	*-0.0344*	*0.00254*	*0.00204*	*0.00155*	*-0.555***	*-0.607***	*-0.592***	*-0.000364*	*0.000230*	*-0.00629*
	(0.0297)	*(0.0300)*	*(0.0298)*	*(0.0318)*	*(0.0305)*	*(0.0298)*	*(0.258)*	*(0.262)*	*(0.262)*	*(0.0574)*	*(0.0573)*	*(0.0578)*
FA	*-0.0735****			*-0.0783****			*-0.205*			*-0.0230*		
	(0.0185)			*(0.0228)*			*(0.124)*			*(0.0615)*		
$FA - T\ if\ FA < T$		*-0.0518***			*-0.0756***			*-0.450***			*-0.0170*	
		(0.0251)			*(0.0355)*			*(0.221)*			*(0.0575)*	
$FA - T\ if\ FA > T$		*-0.0905****			*-0.0806***			*0.163*			*-0.0358*	
		(0.0268)			*(0.0331)*			*(0.289)*			*(0.160)*	
$W^{low}(FA - c^*)$			*-0.0417*			*-0.0716*			*10.75*			*-0.0439*
			(0.0308)			*(0.0462)*			*(7.184)*			*(0.0642)*
$W^{high}(FA - c^*)$			*0.708*			*0.0784*			*0.0882*			*-108.7*
			(0.754)			*(1.049)*			*(0.196)*			*(68.21)*
Constant	*3.428***	*3.542***	*1.719*	*1.205*	*0.828*	*-2.443*	*40.18***	*40.52**	*40.12***	*0.589*	*0.550*	*0.236*
	(1.631)	*(1.654)*	*(2.372)*	*(1.872)*	*(1.915)*	*(3.231)*	*(19.76)*	*(20.25)*	*(19.86)*	*(4.714)*	*(4.735)*	*(4.466)*
Observations	382	382	382	247	247	247	53	53	53	58	58	58
R^2	0.331	0.333	0.334	0.251	0.251	0.251	0.461	0.485	0.492	0.549	0.549	0.558
TAR (T) or LSTR (c)*		0	52		5	52		10	0		3	19
LSTR parameter (γ)*			*1*			1			3			7
LM Test (GTD 2005) H0: Linear Model			14.51			8.440			5.327			15.69
p-value nonlinearity			0.105			0.490			0.805			0.0737
LM Test for remaining nonlinearities			64.25			247.2			10.83			13.19
p-value remaining nonlinearity			2.02e-10			0			0.288			0.154

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 16:* De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth Robustness Check: Lagged IFI Proxy Variable**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-4.58e-05***	*-4.33e-05****	*-4.34e-05****	*-0.000113**	*-0.000109**	*-0.000113**	*-0.000354****	*-0.000366***	*-0.000366***	*-0.000248****	*-0.000202***	*-0.000201***
	(9.26e-06)	*(9.31e-06)*	*(9.31e-06)*	*(6.31e-05)*	*(6.25e-05)*	*(6.31e-05)*	*(0.000101)*	*(0.000103)*	*(0.000102)*	*(8.16e-05)*	*(7.96e-05)*	*(7.98e-05)*
Invest to GDP	*0.0381****	*0.0372****	*0.0372****	*0.0390****	*0.0381****	*0.0386****	*0.0605*	*0.0619*	*0.0619*	*0.0262*	*0.0235*	*0.0239*
	(0.00941)	*(0.00927)*	*(0.00927)*	*(0.0108)*	*(0.0108)*	*(0.0107)*	*(0.0373)*	*(0.0378)*	*(0.0378)*	*(0.0382)*	*(0.0378)*	*(0.0378)*
NFA to GDP	*0.500****	*0.511****	*0.511****	*0.510***	*0.528***	*0.518***	*1.046*	*0.790*	*0.788*	*3.026***	*2.898***	*2.901***
	(0.161)	*(0.159)*	*(0.159)*	*(0.213)*	*(0.206)*	*(0.208)*	*(0.875)*	*(0.881)*	*(0.881)*	*(1.201)*	*(1.182)*	*(1.182)*
FDI	*0.181****	*0.185****	*0.185****	*0.259****	*0.262****	*0.260****	*0.256**	*0.256**	*0.256**	*0.199****	*0.204****	*0.204****
	(0.0408)	*(0.0408)*	*(0.0408)*	*(0.0553)*	*(0.0550)*	*(0.0552)*	*(0.130)*	*(0.131)*	*(0.131)*	*(0.0620)*	*(0.0588)*	*(0.0589)*
Population Growth	*0.443****	*0.463****	*0.463****	*0.326***	*0.330***	*0.331***	*0.639*	*0.658*	*0.658*	*0.115*	*0.0939*	*0.0939*
	(0.106)	*(0.106)*	*(0.106)*	*(0.164)*	*(0.164)*	*(0.164)*	*(0.419)*	*(0.424)*	*(0.423)*	*(0.304)*	*(0.284)*	*(0.285)*
Inflation	*-0.00163****	*-0.00160****	*-0.00160****	*-0.00152****	*-0.00150****	*-0.00151****	*-0.0217***	*-0.0190***	*-0.0190***	*-0.00264***	*-0.00211**	*-0.00212**
	(0.000514)	*(0.000497)*	*(0.000498)*	*(0.000467)*	*(0.000461)*	*(0.000461)*	*(0.0105)*	*(0.00895)*	*(0.00897)*	*(0.00128)*	*(0.00116)*	*(0.00116)*
Literacy Rate	*-0.00493*	*-0.00457*	*-0.00455*	*-0.0111*	*-0.0118*	*-0.0111*	*-0.0185*	*-0.0171*	*-0.0171*	*-0.0367****	*-0.0418****	*-0.0418****
	(0.00537)	*(0.00535)*	*(0.00535)*	*(0.00769)*	*(0.00771)*	*(0.00770)*	*(0.0200)*	*(0.0201)*	*(0.0201)*	*(0.0112)*	*(0.0112)*	*(0.0112)*
Trade to GDP	*0.00321*	*0.00212*	*0.00213*	*0.0138*	*0.0139*	*0.0132*	*0.0198*	*0.0224*	*0.0224*	*0.00717*	*0.00485*	*0.00495*
	(0.00641)	*(0.00640)*	*(0.00640)*	*(0.00892)*	*(0.00890)*	*(0.00893)*	*(0.0223)*	*(0.0225)*	*(0.0225)*	*(0.0115)*	*(0.0115)*	*(0.0115)*
$KAOPEN$	*-0.0124*			*4.35e-05*			*0.0105*			*0.0477****		
	(0.00760)			*(0.00942)*			*(0.0292)*			*(0.0155)*		
$KAOP - T\ if\ KAOP < T$		*0.0443***			*0.0169*			*0.142*			*0.370****	
		(0.0221)			*(0.0116)*			*(0.0971)*			*(0.102)*	
$KAOP - T\ if\ KAOP > T$		*-0.0372****			*-0.278***			*-0.0261*			*0.0195*	
		(0.0108)			*(0.134)*			*(0.0410)*			*(0.0175)*	
$W^{low}(KAOP - c^*)$			*0.0425**			*0.0230*			*0.139*			*0.364****
			(0.0217)			*(0.0185)*			*(0.0955)*			*(0.101)*
$W^{high}(KAOP - c^*)$			*-0.0363****			*-0.0332*			*-0.0253*			*0.0210*
			(0.0106)			*(0.0236)*			*(0.0406)*			*(0.0172)*
Constant	*3.236****	*3.366****	*3.345****	*3.009****	*3.541****	*3.382****	*5.180***	*5.807****	*5.782****	*5.889****	*7.445****	*7.399****
	(0.412)	*(0.437)*	*(0.435)*	*(0.599)*	*(0.748)*	*(0.703)*	*(1.987)*	*(2.108)*	*(2.104)*	*(1.240)*	*(1.243)*	*(1.245)*
Observations	1,366	1,366	1,366	898	898	898	143	143	143	209	209	209
R^2	0.166	0.171	0.171	0.176	0.179	0.178	0.300	0.309	0.309	0.322	0.368	0.368
TAR (T) or LSTR (c)*		24	24		47	32		22			15	15
LSTR parameter (γ)*			14			*14*			15			15
LM Test (GTD 2005) H0: Linear Model			47.77			34.32			22			20
p-value nonlinearity			0.00179			0.0606						0.642
LM Test for remaining nonlinearities			13.35			7.817						23.57
p-value remaining nonlinearity			0.944			0.999						0.428

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

Robustness Test 3: Post-1990 Estimations

Robustness test 3 uses 5-year non-overlapping averages after 1990. Therefore, there are 5 observations per country (assuming there were no missing values). The justification for using this as a robustness test is firstly to take a closer look at the regression findings using more recent dataset to check to see if these threshold effects differ. Secondly, monetary policies, post-1990 have been quite different, especially for emerging market economies. Finally, it makes sense to include it because over the past two decades the world economy has become increasingly more financially integrated than ever before e.g. increase in financial flows post-1990s, refer to the historical trends for de facto figures. The final comment that the reader should take into account for this section is that, despite the inclusion of transition economies, the results would not be drastically different due to these countries being under the communist regime of old. However, it has been included due to a few overlaps in the countries that are labeled as developing and/or emerging.

Table 17 looks at the relationship between FDI and growth. The coefficients of interest are similar across all country groups in table 3 and table 17. The threshold levels are also close approximates of table 17. The results acquired in this table further signify the fact that for the FDI variable, there definitely must be multiple thresholds (that is unaccounted by LSTR). Table 18 looks at the relationship between EFPI and growth. The threshold levels of EFPI for TAR and LSTR are similar to those acquired in table 3; they vary between 0-2% of GDP. The coefficients of interest are also similar to those acquired in table 3. Even though the regression models in table 3 are nonlinear (referring to the tests of nonlinearity), the test that checks for remaining nonlinearities suggest that there may be multiple thresholds or more than two regimes. Table 19 looks at the relationship between non-resident bank loans and growth (we compare this to table 5). Due to the fact that the data for non-resident bank loans starts after 1995, the results acquired in table 19 and table 5 are exactly the same. Therefore, no additional inferences are drawn from this table. This is the same for table 6 and table 20, both of which look at the relationship between the financial account and growth. However, the data is unavailable until the year 2000.

Table 21 looks at the relationship between capital account openness and growth (note that this table is compared to table 2). The coefficients of interest for all economies, developing economies and transition economies are all statistically insignificant in table 21. However, the results acquired for emerging market economies in regression models 10, 11, and 12 are not distinctively different from those acquired in table 2. The threshold levels are also not dissimilar.

***Table 17:* FDI (% of GDP) on Growth Robustness Check: Post-1990 Estimations**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.19e-05***	*-2.80e-05****	*-2.07e-05***	*-3.12e-05*	*-5.29e-05*	*-5.69e-05*	*-0.000242***	*-0.000185***	*-0.000208***	*-1.92e-05*	*-2.64e-06*	*1.52e-05*
	(1.09e-05)	*(1.04e-05)*	*(9.93e-06)*	*(7.18e-05)*	*(8.64e-05)*	*(8.37e-05)*	*(9.49e-05)*	*(9.13e-05)*	*(9.09e-05)*	*(0.000111)*	*(0.000108)*	*(0.000108)*
Investment to GDP	*0.165****	*0.115****	*0.117****	*0.138****	*0.0906****	*0.0874****	*-0.00611*	*-0.0140*	*-0.0144*	*0.186****	*0.170****	*0.170****
	(0.0390)	*(0.0264)*	*(0.0252)*	*(0.0359)*	*(0.0323)*	*(0.0305)*	*(0.104)*	*(0.101)*	*(0.105)*	*(0.0426)*	*(0.0432)*	*(0.0423)*
Population Growth	*0.759****	*0.761****	*0.760****	*1.164****	*1.103****	*1.102****	*1.144***	*1.022**	*1.049***	*1.313****	*1.239****	*1.225****
	(0.136)	*(0.138)*	*(0.136)*	*(0.198)*	*(0.192)*	*(0.192)*	*(0.555)*	*(0.516)*	*(0.526)*	*(0.494)*	*(0.440)*	*(0.426)*
Inflation	*-0.00237**	*-0.00241***	*-0.00236***	*-0.00227***	*-0.00234***	*-0.00234***	*-0.00858****	*-0.00793****	*-0.00844****	*-0.00156***	*-0.00143***	*-0.00139***
	(0.00123)	*(0.00120)*	*(0.00119)*	*(0.00114)*	*(0.00112)*	*(0.00112)*	*(0.00175)*	*(0.00177)*	*(0.00172)*	*(0.000634)*	*(0.000582)*	*(0.000569)*
Literacy Rate	*-0.0128*	*-0.0129*	*-0.0149**	*-0.00767*	*-0.00786*	*-0.00748*	*-0.0417*	*-0.0500**	*-0.0486**	*-0.0304**	*-0.0409***	*-0.0435***
	(0.00829)	*(0.00815)*	*(0.00813)*	*(0.0112)*	*(0.0110)*	*(0.0110)*	*(0.0284)*	*(0.0284)*	*(0.0278)*	*(0.0164)*	*(0.0166)*	*(0.0169)*
Life Expectancy	*0.0271*	*0.0439**	*0.0408**	*0.0506**	*0.0699***	*0.0719***	*0.339*	*0.328*	*0.332*	*0.0479*	*-0.0140*	*-0.0271*
	(0.0247)	*(0.0233)*	*(0.0227)*	*(0.0276)*	*(0.0291)*	*(0.0285)*	*(0.217)*	*(0.209)*	*(0.217)*	*(0.0468)*	*(0.0386)*	*(0.0375)*
FDI	*0.125****			*0.255****			*0.264*			*0.204*		
	(0.0410)			*(0.0680)*			*(0.169)*			*(0.164)*		
$FDI - T\ if\ FDI < T$		*0.0896****			*0.185****			*0.513***			*0.696****	
		(0.0313)			*(0.0603)*			*(0.208)*			*(0.237)*	
$FDI - T\ if\ FDI > T$		*56.10****			*0.980****			*-3.010****			*-0.300****	
		(8.297)			*(0.186)*			*(1.008)*			*(0.0835)*	
$W^{low}(FDI - c^*)$			*0.167****			*0.217****			*0.0714*			*0.758****
			(0.0296)			*(0.0569)*			*(0.113)*			*(0.244)*
$W^{high}(FDI - c^*)$			*15.42****			*0.939****			*-5.816**			*-0.308****
			(2.100)			*(0.153)*			*(2.994)*			*(0.0775)*
Constant	*-2.529***	*2.828*	*6.956****	*-4.843****	*0.0853*	*0.773*	*-16.45*	*-7.821*	*-14.47*	*-3.563*	*5.662*	*6.256*
	(1.219)	*(2.110)*	*(1.929)*	*(1.367)*	*(1.933)*	*(1.810)*	*(12.96)*	*(10.62)*	*(11.88)*	*(3.537)*	*(3.920)*	*(3.909)*
Observations	713	713	713	470	470	470	101	101	101	104	104	104
R^2	0.398	0.447	0.450	0.442	0.478	0.478	0.499	0.533	0.514	0.496	0.555	0.566
TAR (T) or LSTR (c)*		57	55		25	24		16	19		7	7
LSTR parameter (γ)*			1			*1*			1			1
LM Test (GTD 2005) H0: Linear Model			19.52			23.85			24.15			23.40
p-value nonlinearity			0.0614			0.0213			0.0191			0.0241
LM Test for remaining nonlinearities			95.80			60.60			10.53			59.22
p-value remaining nonlinearity			0			1.76e-08			0.570			3.13e-08

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 18:* EFPI (% of GDP) on Growth Robustness Check: Post-1990 Estimations**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-2.97e-05***	*-2.93e-05***	*-3.18e-05****	*-8.46e-06*	*-4.12e-05*	*-1.36e-05*	*-0.000160*	*-0.000161*	*-0.000151*	*-0.000132*	*-0.000123*	*-0.000114*
	(1.18e-05)	*(1.18e-05)*	*(1.16e-05)*	*(0.000102)*	*(0.000104)*	*(0.000102)*	*(0.000104)*	*(0.000104)*	*(0.000104)*	*(0.000127)*	*(0.000128)*	*(0.000128)*
Trade to GDP	*0.0220***	*0.0224***	*0.0230***	*0.0382***	*0.0397***	*0.0389***	*0.00221*	*8.39e-05*	*0.00102*	*0.000633*	*0.00198*	*0.00304*
	(0.0111)	*(0.0111)*	*(0.0113)*	*(0.0184)*	*(0.0184)*	*(0.0184)*	*(0.0111)*	*(0.0113)*	*(0.0112)*	*(0.00558)*	*(0.00584)*	*(0.00593)*
Population Growth	*0.886****	*0.880****	*0.881****	*1.262****	*1.263****	*1.272****	*1.303***	*1.355***	*1.334***	*0.800**	*0.812**	*0.847**
	(0.145)	*(0.146)*	*(0.148)*	*(0.216)*	*(0.216)*	*(0.217)*	*(0.611)*	*(0.616)*	*(0.615)*	*(0.450)*	*(0.450)*	*(0.449)*
Inflation	*-0.00229****	*-0.00229****	*-0.00228****	*-0.00220****	*-0.00216****	*-0.00218****	*-0.00968****	*-0.00968****	*-0.00968****	*-0.00176****	*-0.00178****	*-0.00176****
	(0.000689)	*(0.000690)*	*(0.000689)*	*(0.000679)*	*(0.000675)*	*(0.000678)*	*(0.00164)*	*(0.00165)*	*(0.00165)*	*(0.000638)*	*(0.000644)*	*(0.000640)*
Literacy Rate	*-0.0122*	*-0.0124*	*-0.0131*	*-0.0116*	*-0.0129*	*-0.0116*	*-0.0346*	*-0.0336*	*-0.0338*	*-0.0572****	*-0.0575****	*-0.0564****
	(0.00854)	*(0.00855)*	*(0.00856)*	*(0.0114)*	*(0.0114)*	*(0.0114)*	*(0.0294)*	*(0.0296)*	*(0.0296)*	*(0.0195)*	*(0.0194)*	*(0.0192)*
Life Expectancy	*0.0367*	*0.0382*	*0.0380*	*0.0593**	*0.0617**	*0.0607**	*0.218**	*0.234***	*0.222***	*0.206****	*0.198***	*0.186***
	(0.0340)	*(0.0337)*	*(0.0335)*	*(0.0322)*	*(0.0318)*	*(0.0319)*	*(0.111)*	*(0.112)*	*(0.111)*	*(0.0767)*	*(0.0791)*	*(0.0775)*
$EFPI$	*-0.0162*			*0.0996*			*0.760*			*1.039***		
	(0.0105)			*(0.0796)*			*(1.144)*			*(0.505)*		
$EFPI - T\ if\ EFPI < T$		*0.702***			*2.112****			*-0.0601*			*2.210****	
		(0.340)			*(0.699)*			*(1.292)*			*(0.608)*	
$EFPI - T\ if\ EFPI > T$		*-0.0168*			*-0.128**			*104.4***			*0.856*	
		(0.0107)			*(0.0707)*			*(50.51)*			*(0.554)*	
$W^{low}(EFPI - c^*)$			*1.123***			*3.481**			*1.238*			*3.456****
			(0.465)			*(2.050)*			*(1.047)*			*(0.785)*
$W^{high}(EFPI - c^*)$			*-0.0165*			*0.0522*			*43.51**			*0.562*
			(0.0106)			*(0.0567)*			*(25.43)*			*(0.468)*
Constant	*-0.721*	*-0.814*	*-0.848*	*-4.199****	*-2.366*	*-4.398****	*-8.410*	*-9.535*	*-6.019*	*-6.833*	*-6.263*	*-5.723*
	(1.513)	*(1.503)*	*(1.501)*	*(1.495)*	*(1.499)*	*(1.505)*	*(7.074)*	*(7.527)*	*(6.967)*	*(5.181)*	*(5.362)*	*(5.205)*
Observations	789	789	789	525	525	525	118	118	118	109	109	109
R^2	0.203	0.204	0.206	0.241	0.251	0.246	0.409	0.413	0.412	0.374	0.377	0.386
TAR (T) or LSTR (c)*		0	0		1	0		2	2		0	0
LSTR parameter (γ)*			*12*			*2*			1			*1*
LM Test (GTD 2005) H0: Linear Model			21.47			22.80			17.561			21.80
p-value nonlinearity			0.0489			0.0384			0.0818			0.0461
LM Test for remaining nonlinearities			24.82			20.19			4.894			55.98
p-value remaining nonlinearity			0.0157			0.0637			0.961			1.21e-07

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 19:* Non-Resident Bank Loans (% of GDP) on Growth Robustness Check: Post 1990 Estimations**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*1.56e-06* *(2.35e-05)*	*1.47e-06* *(2.35e-05)*	*5.24e-06* *(2.41e-05)*	*3.42e-05* *(0.000110)*	*1.66e-05* *(0.000112)*	*3.90e-05* *(0.000112)*	*-0.000106* *(0.000103)*	*-0.000139* *(0.000111)*	*-0.000153* *(0.000115)*	*-0.000194** *(0.000109)*	*-0.000167* *(0.000105)*	*-0.000170* *(0.000104)*
Trade to GDP	*0.0343*** *(0.0163)*	*0.0349*** *(0.0162)*	*0.0349*** *(0.0163)*	*0.0427*** *(0.0205)*	*0.0431*** *(0.0205)*	*0.0437*** *(0.0205)*	*-0.00170* *(0.0111)*	*0.00189* *(0.0117)*	*0.00210* *(0.0121)*	*-0.000904* *(0.00621)*	*0.00225* *(0.00630)*	*0.00159* *(0.00596)*
Population Growth	*0.907**** *(0.163)*	*0.916**** *(0.163)*	*0.913**** *(0.163)*	*1.285**** *(0.226)*	*1.308**** *(0.223)*	*1.320**** *(0.230)*	*1.010** *(0.600)*	*1.198** *(0.636)*	*1.108** *(0.604)*	*0.318* *(0.340)*	*0.385* *(0.341)*	*0.334* *(0.338)*
Inflation	*-0.00332*** *(0.00147)*	*-0.00318*** *(0.00138)*	*-0.00326*** *(0.00143)*	*-0.00338*** *(0.00137)*	*-0.00329*** *(0.00129)*	*-0.00331*** *(0.00132)*	*-0.0101**** *(0.00162)*	*-0.00877**** *(0.00177)*	*-0.00940**** *(0.00174)*	*-0.00990**** *(0.00148)*	*-0.0100**** *(0.00147)*	*-0.00996**** *(0.00149)*
Literacy Rate	*-0.0192** *(0.00983)*	*-0.0194*** *(0.00980)*	*-0.0192** *(0.00981)*	*-0.0172* *(0.0121)*	*-0.0162* *(0.0119)*	*-0.0165* *(0.0119)*	*-0.0367* *(0.0294)*	*-0.0288* *(0.0287)*	*-0.0436* *(0.0293)*	*-0.0400*** *(0.0181)*	*-0.0339** *(0.0183)*	*-0.0367*** *(0.0177)*
Life Expectancy	*0.0415* *(0.0261)*	*0.0413* *(0.0261)*	*0.0385* *(0.0263)*	*0.0554*** *(0.0279)*	*0.0560*** *(0.0281)*	*0.0523** *(0.0283)*	*0.220** *(0.120)*	*0.202** *(0.110)*	*0.198** *(0.114)*	*0.139*** *(0.0570)*	*0.133*** *(0.0546)*	*0.131*** *(0.0551)*
CBL	*-0.0369*** *(0.0175)*			*-0.0114** *(0.00671)*			*-0.0387** *(0.0229)*			*-0.0354* *(0.0436)*		
$CBL - T\ if\ CBL < T$		*3.664* *(2.231)*			*3.287* *(2.181)*			*8.394* *(5.632)*			*-0.0795*** *(0.0396)*	
$CBL - T\ if\ CBL > T$		*-0.0416*** *(0.0177)*			*-0.0127** *(0.00684)*			*-0.0475*** *(0.0198)*			*0.337**** *(0.0887)*	
$W^{low}(CBL - c^*)$			*0.791* *(0.572)*			*0.981* *(0.635)*			*0.576* *(0.514)*			*-0.0447* *(0.0270)*
$W^{high}(CBL - c^*)$			*-0.0360*** *(0.0173)*			*-0.0112** *(0.00662)*			*-0.0528**** *(0.0192)*			*4.212**** *(0.781)*
Constant	*-1.095* *(1.410)*	*-1.010* *(1.410)*	*-1.183* *(1.411)*	*-3.752*** *(1.799)*	*-3.764*** *(1.804)*	*-3.918*** *(1.843)*	*-7.606* *(7.659)*	*-6.933* *(7.225)*	*-5.146* *(7.227)*	*-1.486* *(3.985)*	*-4.624* *(4.130)*	*-3.684* *(4.032)*
Observations	630	630	630	455	455	455	115	115	115	97	97	97
R^2	0.274	0.284	0.280	0.290	0.299	0.298	0.418	0.462	0.436	0.532	0.553	0.560
TAR (T) or LSTR (c)*		1	2		1	2		1	5		39	52
LSTR parameter (γ)*			*7*			*15*			*15*			*2*
LM Test (GTD 2005) H0: Linear Model			21.82			24.94			29.080			22.947
p-value nonlinearity			0.0258			0.0185			0.00615			0.0535
LM Test for remaining nonlinearities			12.82			8.442			8.985			25.88
p-value remaining nonlinearity			0.305			0.673			0.623			0.00677

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the results table. CBL refers to cross-border lending which is non-resident bank loans as a percentage of GDP.

***Table 20:* Financial Account (% of GDP) on Growth Robustness Check: Post-1990 Estimations**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-3.97e-05****	*-4.04e-05****	*-4.01e-05****	*-0.000238****	*-0.000239****	*-0.000239****				*-0.000193**	*-0.000210**	*-0.000207**
	(8.97e-06)	*(9.08e-06)*	*(9.10e-06)*	*(7.83e-05)*	*(7.91e-05)*	*(7.90e-05)*				*(0.000114)*	*(0.000118)*	*(0.000113)*
Trade to GDP	*0.121****	*0.119****	*0.119****	*0.108****	*0.104****	*0.104****				*0.180****	*0.178****	*0.184****
	(0.0169)	*(0.0174)*	*(0.0173)*	*(0.0180)*	*(0.0185)*	*(0.0185)*				*(0.0390)*	*(0.0392)*	*(0.0400)*
Population Growth	*0.264***	*0.258***	*0.261***	*0.367**	*0.356**	*0.357**				*0.299*	*0.380*	*0.544*
	(0.122)	*(0.122)*	*(0.122)*	*(0.207)*	*(0.208)*	*(0.208)*				*(0.444)*	*(0.464)*	*(0.495)*
Inflation	*0.0461***	*0.0446***	*0.0449***	*0.0375**	*0.0346*	*0.0347*				*-0.0195*	*-0.0224*	*-0.0252*
	(0.0193)	*(0.0195)*	*(0.0196)*	*(0.0207)*	*(0.0210)*	*(0.0211)*				*(0.0348)*	*(0.0347)*	*(0.0343)*
Literacy Rate	*-0.0139**	*-0.0139**	*-0.0138**	*-0.00247*	*-0.00268*	*-0.00261*				*-0.00899*	*-0.00663*	*-0.00359*
	(0.00720)	*(0.00718)*	*(0.00721)*	*(0.0103)*	*(0.0103)*	*(0.0103)*				*(0.0147)*	*(0.0150)*	*(0.0147)*
Life Expectancy	*-0.0257*	*-0.0255*	*-0.0259*	*0.00456*	*0.00537*	*0.00517*				*-0.00240*	*0.000133*	*-0.00177*
	(0.0226)	*(0.0225)*	*(0.0227)*	*(0.0252)*	*(0.0250)*	*(0.0251)*				*(0.0350)*	*(0.0370)*	*(0.0366)*
FA	*-0.0532****			*-0.0607****			*-0.0321*			*-0.0402*		
	(0.0149)			*(0.0198)*			*(0.0249)*			*(0.0517)*		
$FA - T \; if \; FA < T$		*-0.0555****			*-0.0661****			*-0.0451*			*-0.0924*	
		(0.0156)			*(0.0212)*			*(0.0156)*			*(0.0612)*	
$FA - T \; if \; FA > T$		*0.0547*			*0.100*			*0.0147*			*0.0212*	
		(0.102)			*(0.113)*			*(0.102)*			*(0.113)*	
$W^{low}(FA - c^*)$			*-0.0545****			*-0.0657****			*-0.145***			*-0.117***
			(0.0155)			*(0.0211)*			*(0.0155)*			*(0.0550)*
$W^{high}(FA - c^*)$			*0.0360*			*0.0948*			*0.0160**			*-5.006**
			(0.0938)			*(0.108)*			*(3.938)*			*(2.591)*
Constant	*3.822****	*2.223*	*2.191*	*1.938*	*0.0689*	*0.0822*	*2.221*	*3.413*	*1.132*	*1.668*	*1.137*	*-1.322*
	(1.382)	*(1.454)*	*(1.466)*	*(1.623)*	*(1.838)*	*(1.842)*	*(4.382)*	*(1.454)*	*(1.466)*	*(3.116)*	*(3.379)*	*(3.230)*
Observations	388	388	388	253	253	253	42	42	42	58	58	58
R^2	0.368	0.369	0.369	0.270	0.273	0.273	0.368	0.369	0.369	0.547	0.554	0.575
TAR (T) or LSTR (c)*		30	31		30	30		1	2		0	16
LSTR parameter (γ)*			*6*			11			*6*			2
LM Test (GTD 2005) *H0: Linear Model*			15.04			18.17			15.04			14.38
p-value nonlinearity			0.0900			0.0755			0.0900			0.109
LM Test for remaining nonlinearities			15.62			9.388			15.62			39.89
p-value remaining nonlinearity			0.0752			0.402			0.0752			7.96e-06

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*
Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

***Table 21:* De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth Robustness Check: Post-1990 Estimations**												
	All Economies			*Developing Economies*			*Transition Economies*			*Emerging Market Economies*		
	(1) Ordinary Least Squares	*(2) Threshold Regression (TAR)*	*(3) Logistic Smooth Transition Regression (LSTR)*	*(4) Ordinary Least Squares*	*(5) Threshold Regression (TAR)*	*(6) Logistic Smooth Transition Regression (LSTR)*	*(7) Ordinary Least Squares*	*(8) Threshold Regression (TAR)*	*(9) Logistic Smooth Transition Regression (LSTR)*	*(10) Ordinary Least Squares*	*(11) Threshold Regression (TAR)*	*(12) Logistic Smooth Transition Regression (LSTR)*
Variable												
Initial GDP per Capita	*-3.99e-05***	*-3.69e-05***	*-3.80e-05***	*-0.000108*	*-0.000106*	*-0.000106*	*-0.000305****	*-0.000325***	*-0.000324***	*-0.000126*	*-0.000129*	*-0.000127*
	(1.49e-05)	*(1.60e-05)*	*(1.59e-05)*	*(8.55e-05)*	*(8.56e-05)*	*(8.56e-05)*	*(0.000104)*	*(0.000106)*	*(0.000106)*	*(9.77e-05)*	*(9.23e-05)*	*(9.22e-05)*
Invest to GDP	*0.0281*	*0.0276*	*0.0279*	*0.0378***	*0.0373***	*0.0373***	*0.0368*	*0.0378*	*0.0373*	*0.111***	*0.0961***	*0.0971***
	(0.0181)	*(0.0182)*	*(0.0182)*	*(0.0177)*	*(0.0177)*	*(0.0177)*	*(0.0264)*	*(0.0266)*	*(0.0264)*	*(0.0449)*	*(0.0452)*	*(0.0452)*
NFA to GDP	*0.524***	*0.531***	*0.528***	*0.555***	*0.540***	*0.539***	*0.975*	*0.750*	*0.785*	*1.554*	*1.875*	*1.857*
	(0.226)	*(0.225)*	*(0.226)*	*(0.274)*	*(0.271)*	*(0.271)*	*(0.966)*	*(0.934)*	*(0.942)*	*(1.590)*	*(1.519)*	*(1.519)*
FDI	*0.310****	*0.313****	*0.313****	*0.431****	*0.431****	*0.431****	*0.0581*	*0.0590*	*0.0589*	*0.133*	*0.142*	*0.140*
	(0.115)	*(0.116)*	*(0.116)*	*(0.131)*	*(0.132)*	*(0.132)*	*(0.0957)*	*(0.0936)*	*(0.0932)*	*(0.108)*	*(0.0985)*	*(0.0992)*
Population Growth	*0.578****	*0.579****	*0.577****	*0.783****	*0.779****	*0.779****	*0.805***	*0.791***	*0.788***	*0.252*	*0.200*	*0.199*
	(0.160)	*(0.160)*	*(0.160)*	*(0.181)*	*(0.181)*	*(0.181)*	*(0.385)*	*(0.376)*	*(0.375)*	*(0.328)*	*(0.302)*	*(0.303)*
Inflation	*-0.00141***	*-0.00139****	*-0.00140****	*-0.00134****	*-0.00141****	*-0.00141****	*-0.0264****	*-0.0246****	*-0.0246****	*-0.00106****	*-0.000734****	*-0.000735****
	(0.000211)	*(0.000218)*	*(0.000216)*	*(0.000213)*	*(0.000175)*	*(0.000173)*	*(0.00937)*	*(0.00867)*	*(0.00854)*	*(0.000122)*	*(0.000172)*	*(0.000173)*
Literacy Rate	*-0.00729*	*-0.00805*	*-0.00779*	*0.000119*	*-0.000447*	*-0.000463*	*-0.0183*	*-0.0150*	*-0.0152*	*-0.0395****	*-0.0421****	*-0.0421****
	(0.00831)	*(0.00847)*	*(0.00845)*	*(0.00968)*	*(0.00970)*	*(0.00970)*	*(0.0162)*	*(0.0165)*	*(0.0164)*	*(0.0150)*	*(0.0151)*	*(0.0152)*
Trade to GDP	*0.00250*	*0.00254*	*0.00239*	*0.00871*	*0.00983*	*0.00988*	*0.00906*	*0.0146*	*0.0150*	*-0.0240***	*-0.0225**	*-0.0225**
	(0.00856)	*(0.00858)*	*(0.00852)*	*(0.0129)*	*(0.0129)*	*(0.0129)*	*(0.0202)*	*(0.0208)*	*(0.0207)*	*(0.0113)*	*(0.0114)*	*(0.0114)*
$KAOP$	*-0.0125*			*-0.00854*			*0.0291*			*0.0452***		
	(0.0106)			*(0.0140)*			*(0.0261)*			*(0.0221)*		
$KAOP - T\ if\ KAOP < T$		*0.00102*			*-0.356*			*0.155*			*0.401****	
		(0.0135)			*(0.248)*			*(0.104)*			*(0.133)*	
$KAOP - T\ if\ KAOP > T$		*-0.0603*			*-0.00293*			*-0.00647*			*0.0202*	
		(0.0462)			*(0.0142)*			*(0.0380)*			*(0.0223)*	
$W^{low}(KAOP - c^*)$			*-0.00322*			*-0.373*			*0.177*			*0.391****
			(0.0123)			*(0.250)*			*(0.115)*			*(0.131)*
$W^{high}(KAOP - c^*)$			*2.029*			*-0.00338*			*-0.00580*			*0.0228*
			(2.333)			*(0.0141)*			*(0.0366)*			*(0.0220)*
Constant	*2.782****	*2.606****	*2.470****	*1.270**	*1.043*	*1.056*	*5.981****	*6.744****	*6.748****	*4.413***	*6.355****	*6.249****
	(0.677)	*(0.764)*	*(0.815)*	*(0.734)*	*(0.772)*	*(0.770)*	*(1.499)*	*(1.387)*	*(1.379)*	*(1.711)*	*(1.906)*	*(1.906)*
Observations	678	678	678	451	451	451	98	98	98	100	100	100
R^2	0.289	0.290	0.290	0.366	0.369	0.370	0.374	0.387	0.389	0.468	0.514	0.513
TAR (T) or LSTR (c)*		41	51		11	11		22	21		16	16
LSTR parameter (γ)*			15			*15*			14			15
LM Test (GTD 2005) H0: Linear Model			35.32			23.71			23.49			25.49
p-value nonlinearity			0.00132			0.0497			0.0411			0.0488
LM Test for remaining nonlinearities			7.188			4.050			13.69			10.24
p-value remaining nonlinearity			0.927			0.995			0.396			0.745

****Significant at p<0.01;**significant at p<0.05, *significant at p<0.10*

Note: Numbers in brackets are robust standard errors and the coefficients for time and country dummy variables are not displayed on the final results table.

Robustness Test 4: Quadratic Estimations

For this particular robustness check, the threshold measures will be tested with standard quadratic estimations. However, the quadratic estimations are only tested for the key independent variables (IFI proxy variables) of interest that has the high transition speed (from one regime to the other; denoted by gamma, γ*) i.e. indicating that the TAR model is more appropriate for interpretation rather than the LSTR. The second choice of selection is whether there are two regimes (single threshold) or more than two regimes (multiple threshold). These were the two criteria of selection. The justification for the second criteria of selection is simply because the quadratic estimation would only check for a single threshold and therefore it would be redundant to include the other variables as some of them have a multiple threshold according to the Gonzalez, Terasvirta, and van Djik (2005) test of nonlinearity and detection of multiple regimes. Therefore, only the Chinn-Ito index met both of these conditions and was selected for robustness checks via the quadratic estimations.

The quadratic (nonlinear) relationship is investigated in tables 22, 23, 24, and 25 for all economies, developing economies, transition economies, and emerging market economies respectively. For each of these country groups, the inflexion point[26] was calculated and consequently the maxima or the minima were determined. For all economies (table 22), the inflexion point equals 28.25 and this is a maxima. On table 2, the TAR and LSTR threshold estimates are 21 and 22 respectively. Furthermore, below and above the threshold have negative and positive values respectively. This reiterates and validates our threshold findings. For developing economies (tables 23), the inflexion point equals 25.25 and this has a maxima. The threshold estimates of TAR and LSTR on table 2 are 22 and 23 respectively. The inflexion point and the threshold estimates are again close approximates. However, in table 2, we do not know the coefficients below and above the threshold, but, the quadratic regression analysis suggests increasing growth levels followed by fall in growth rate after crossing the inflexion point. For transition economies (table 24), the inflexion point is equal to 3.5 and it is a maxima; the threshold estimates of TAR and LSTR are distinctively different, however, the coefficients for the TAR and LSTR are not statistically significant (except for the 'low' regime of LSTR which is increasing). For emerging market economies (table 25), the inflexion point equals 39.5 and it is a maxima; the threshold estimates of the TAR and LSTR are 15 and 14 respectively. This is in fact drastically different from the inflexion point estimated. This coefficients below and above the thresholds for both the TAR and LSTR are positive, but, after the threshold, the growth levels fall comparatively.

[26] The inflexion point or the stationary point for the variable KAOPEN was calculated in the following manner: (1) the regression equation was first written out which took into account the coefficients that were statistically significant and if there were several then the coefficients were averaged in the following way e.g. $Growth_{it} = \alpha_0 + \beta_1 KAOP_{it} + \beta_2 KAOP_{it}^2$. Then the (2) inflexion point was found in the following manner: $\frac{\partial Growth}{\partial KAOP} = 0$, and thereby the value of KAOPEN was found. Then in order to determine (3) the minima or the maxima we look at the following: $\frac{\partial^2 Growth}{\partial KAOP^2} < 0$ is a maxima and if this is greater than zero then it is a minima.

Table 22: ***De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth***
Robustness Check: Quadratic Estimations
Country Group: All Economies
Time Period: 1970-2013

	Real GDP Growth Rate (1)	*Real GDP Growth Rate (2)*	*Real GDP Growth Rate (3)*	*Real GDP Growth Rate (4)*	*Real GDP Growth Rate (5)*	*Real GDP Growth Rate (6)*	*Real GDP Growth Rate (7)*	*Real GDP Growth Rate (8)*
KAOP	*-0.025** *(0.007)*	*0.065* *(0.041)*	*0.099** *(0.040)*	*0.093** *(0.040)*	*0.093** *(0.040)*	*0.114*** *(0.040)*	*0.107*** *(0.040)*	*0.113*** *(0.040)*
$KAOP^2$		*-0.001** *(0.001)*	*-0.002** *(0.001)*	*-0.001** *(0.001)*	*-0.001** *(0.001)*	*-0.002*** *(0.001)*	*-0.002*** *(0.001)*	*-0.002*** *(0.001)*
Initial GDP per Capita			*-0.000**** *(0.000)*	*-0.000*** *(0.000)*	*-0.000*** *(0.000)*	*-0.000*** *(0.000)*	*-0.000*** *(0.000)*	*-0.000* *(0.000)*
Population Growth			*0.605**** *(0.128)*	*0.588**** *(0.138)*	*0.583**** *(0.138)*	*0.632**** *(0.126)*	*0.645**** *(0.126)*	*0.515**** *(0.146)*
Invest to GDP				*0.011* *(0.020)*	*0.009* *(0.019)*	*0.018* *(0.013)*	*0.018* *(0.014)*	*0.021* *(0.013)*
NFA to GDP					*0.240* *(0.156)*	*0.599**** *(0.225)*	*0.575*** *(0.217)*	*0.589*** *(0.220)*
FDI						*0.294*** *(0.112)*	*0.289*** *(0.111)*	*0.295*** *(0.112)*
Inflation							*-0.002**** *(0.000)*	*-0.002**** *(0.000)*
Literacy Rate								*-0.013* *(0.007)*
Trade to GDP							*0.000* *(0.006)*	*0.003* *(0.007)*
Constant	*4.637**** *(0.271)*	*3.577**** *(0.556)*	*2.019**** *(0.605)*	*1.990*** *(0.614)*	*2.159**** *(0.615)*	*1.174* *(0.694)*	*1.289* *(0.709)*	*1.917** *(0.757)*
Observations	*914*	*914*	*914*	*914*	*914*	*914*	*914*	*914*
R^2	*0.011*	*0.014*	*0.082*	*0.084*	*0.087*	*0.230*	*0.245*	*0.250*
F	*11.277*	*8.349*	*22.669*	*20.950*	*23.661*	*15.378*	*33.769*	*35.708*

Level of Significance
****1%*
***5%*
**10%*

Table 23: ***De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth*** ***Robustness Check: Quadratic Estimations*** ***Country Group: Developing Economies*** ***Time Period: 1970-2013***								
	Real GDP Growth Rate (1)	*Real GDP Growth Rate (2)*	*Real GDP Growth Rate (3)*	*Real GDP Growth Rate (4)*	*Real GDP Growth Rate (5)*	*Real GDP Growth Rate (6)*	*Real GDP Growth Rate (7)*	*Real GDP Growth Rate (8)*
KAOP	*0.010* *(0.010)*	*0.071* *(0.051)*	*0.091* *(0.051)*	*0.089* *(0.051)*	*0.090* *(0.051)*	*0.101** *(0.051)*	*0.086* *(0.050)*	*0.086* *(0.050)*
$KAOP^2$		*-0.001* *(0.001)*	*-0.001* *(0.001)*	*-0.001* *(0.001)*	*-0.001* *(0.001)*	*-0.002** *(0.001)*	*-0.002* *(0.001)*	*-0.001* *(0.001)*
Initial GDP per Capita			*-0.000* *(0.000)*	*-0.000* *(0.000)*	*-0.000* *(0.000)*	*-0.000* *(0.000)*	*-0.000* *(0.000)*	*-0.000* *(0.000)*
Population Growth			*0.630*** *(0.195)*	*0.615*** *(0.220)*	*0.620*** *(0.215)*	*0.793**** *(0.198)*	*0.829**** *(0.205)*	*0.679**** *(0.190)*
Invest to GDP				*0.008* *(0.025)*	*0.008* *(0.024)*	*0.029** *(0.013)*	*0.024* *(0.014)*	*0.025* *(0.014)*
NFA to GDP					*0.098* *(0.158)*	*0.647** *(0.287)*	*0.616** *(0.278)*	*0.622** *(0.281)*
FDI						*0.416*** *(0.135)*	*0.396*** *(0.129)*	*0.400*** *(0.130)*
Inflation							*-0.002**** *(0.000)*	*-0.002**** *(0.000)*
Literacy Rate								*-0.011* *(0.009)*
Trade to GDP							*0.010* *(0.009)*	*0.012* *(0.010)*
Constant	*4.085**** *(0.317)*	*3.388**** *(0.645)*	*1.868** *(0.742)*	*1.850** *(0.740)*	*1.888** *(0.745)*	*0.517* *(0.891)*	*0.469* *(0.952)*	*1.141* *(0.902)*
Observations	*615*	*615*	*615*	*615*	*615*	*615*	*615*	*615*
R^2	*0.001*	*0.002*	*0.040*	*0.041*	*0.041*	*0.289*	*0.308*	*0.311*
F	*1.005*	*1.218*	*8.038*	*7.574*	*6.398*	*9.036*	*47.094*	*51.073*
Level of Significance ****1%* ***5%* **10%*								

***Table 24:* De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth** **Robustness Check: Quadratic Estimations** **Country Group: Transition Economies** **Time Period: 1970-2013**								
	Real GDP Growth Rate (1)	*Real GDP Growth Rate (2)*	*Real GDP Growth Rate (3)*	*Real GDP Growth Rate (4)*	*Real GDP Growth Rate (5)*	*Real GDP Growth Rate (6)*	*Real GDP Growth Rate (7)*	*Real GDP Growth Rate (8)*
KAOP	*0.014**	*0.104*	*0.218*	*0.251*	*0.234*	*0.229*	*0.151*	*0.141*
	(0.023)	*(0.140)*	*(0.118)*	*(0.126)*	*(0.122)*	*(0.120)*	*(0.126)*	*(0.127)*
$KAOP^2$		*-0.002*	*-0.003*	*-0.003*	*-0.003*	*-0.003*	*-0.002**	*-0.002*
		(0.002)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*
Initial GDP per Capita			*-0.000****	*-0.000****	*-0.000****	*-0.000****	*-0.000****	*-0.000****
			(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Population Growth			*1.089****	*1.121****	*1.158****	*1.147****	*0.946***	*0.796**
			(0.290)	*(0.290)*	*(0.315)*	*(0.304)*	*(0.301)*	*(0.394)*
Invest to GDP				*0.048*	*0.043*	*0.037*	*0.037*	*0.038*
				(0.035)	*(0.032)*	*(0.030)*	*(0.028)*	*(0.028)*
NFA to GDP					*0.542*	*0.664*	*0.743*	*0.870*
					(0.917)	*(0.933)*	*(0.933)*	*(0.865)*
FDI						*0.107*	*0.056*	*0.063*
						(0.098)	*(0.092)*	*(0.093)*
Inflation							*-0.025***	*-0.025***
							(0.009)	*(0.009)*
Literacy Rate								*-0.016*
								(0.016)
Trade to GDP							*0.010*	*0.012*
							(0.020)	*(0.020)*
Constant	*4.483****	*3.061*	*1.722*	*0.920*	*1.393*	*1.087*	*2.904*	*4.200*
	(0.797)	*(1.894)*	*(1.594)*	*(1.807)*	*(1.781)*	*(1.839)*	*(2.007)*	*(2.482)*
Observations	*99*	*99*	*99*	*99*	*99*	*99*	*99*	*99*
R^2	*0.004*	*0.011*	*0.262*	*0.297*	*0.300*	*0.311*	*0.375*	*0.379*
F	*0.389*	*0.583*	*10.890*	*9.569*	*8.448*	*7.396*	*7.142*	*9.052*
Level of Significance ****1%* ***5%* **10%*								

Table 25: ***De Jure Measure of Capital Account Openness (Chinn-Ito Index) on Growth***
Robustness Check: Quadratic Estimations
Country Group: Emerging Market Economies
Time Period: 1970-2013

	Real GDP Growth Rate (1)	Real GDP Growth Rate (2)	Real GDP Growth Rate (3)	Real GDP Growth Rate (4)	Real GDP Growth Rate (5)	Real GDP Growth Rate (6)	Real GDP Growth Rate (7)	Real GDP Growth Rate (8)
KAOP	0.031	0.204*	0.237***	0.216**	0.234***	0.237***	0.207**	0.210***
	(0.016)	(0.083)	(0.068)	(0.070)	(0.068)	(0.068)	(0.061)	(0.058)
$KAOP^2$		-0.003*	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Initial GDP per Capita			-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population Growth			0.664**	0.656**	0.573*	0.705**	0.679**	0.201
			(0.231)	(0.231)	(0.231)	(0.240)	(0.233)	(0.289)
Invest to GDP				0.031	0.013	0.012	0.039	0.039
				(0.031)	(0.031)	(0.030)	(0.043)	(0.040)
NFA to GDP					2.846**	3.188**	2.588*	2.735*
					(1.038)	(1.080)	(1.148)	(1.107)
FDI						0.146	0.154	0.159
						(0.080)	(0.085)	(0.092)
Inflation							-0.003***	-0.002***
							(0.001)	(0.001)
Literacy Rate								-0.036**
								(0.011)
Trade to GDP							-0.011	-0.006
							(0.012)	(0.012)
Constant	3.391***	1.440	0.633	0.273	1.205	0.989	1.072	3.525*
	(0.451)	(1.034)	(1.021)	(1.090)	(1.208)	(1.185)	(1.250)	(1.446)
Observations	136	136	136	136	136	136	136	136
R^2	0.029	0.061	0.288	0.297	0.348	0.362	0.404	0.447
F	3.635	4.176	14.089	11.519	15.232	11.386	13.497	12.302

Level of Significance
****1%*
***5%*
**10%*

Robustness Test 5: Bootstrapping Exercise for Capital Account Openness

The bootstrapping technique is deployed to validate and reaffirm the results acquired by the LSTR model for the variable of interest that is argumentative and presents a special case for reasoned analysis. The parameterized Chinn-Ito index (KAOPEN) is the only variable used for bootstrapping. The fundamental reason being that this is the exogenous de jure FI proxy variable that is of viable interest is because it avoids the problems associated with endogeneity. On figures 61, 62, and 63, the histogram titled 'Threshold (TAR)' indicates the threshold level of the panel threshold regression, and thereby, 'beta_in (TAR)' and 'beta_out (TAR)' refers to the value of the coefficients below and above the threshold respectively. The threshold level of the LSTR model is titled on the histograms as 'Threshold (LSTAR)', where 'beta_low (LSTAR)' and 'beta_high (LSTAR)' refers to the coefficients for the 'low' and 'high' regime (below and above the threshold) respectively. The gamma, or the speed of transition from one regime to the other for the LSTR model is titled 'Gamma (LSTAR)'.

Figure 61 executes the bootstrapping exercise for all the countries in the dataset. The threshold level predominantly clusters around 18 to 26, which is coherent to the findings for the TAR threshold level in table 2. The coefficient below the threshold is seen to be positive, however, the coefficient above the threshold is only just negative, this is in slight contradiction with the results acquired in table 2. Due to the fact that the value of the gamma is high, we do not interpret the findings for the LSTR model as the TAR model is more appropriate for analysis. Figure 62 illustrates the bootstrap findings for developing economies. The histograms of the LSTR model are not taken for consideration due to the high value of gamma, indicating TAR being more appropriate. The threshold levels is seen to be in between 22 to 28 and the coefficients below and above the threshold are positive and negative respectively. Figure 63 looks at emerging market economies. The gamma value centers on the value 15, thereby indicating the appropriateness of the TAR model. The threshold level is from 18 to 25, which is only marginally above the threshold level reported in table 2 for EMEs. The coefficient below the threshold is strictly positive and coefficient above the threshold is zero or greater than zero (but less than the magnitude of the coefficient below the threshold). This is consistent with the findings in table 2. The bootstrapping exercise was not carried out for transition economies due to lack of observations.

***Figure 61:** Bootstrapping for 'All Economies'*

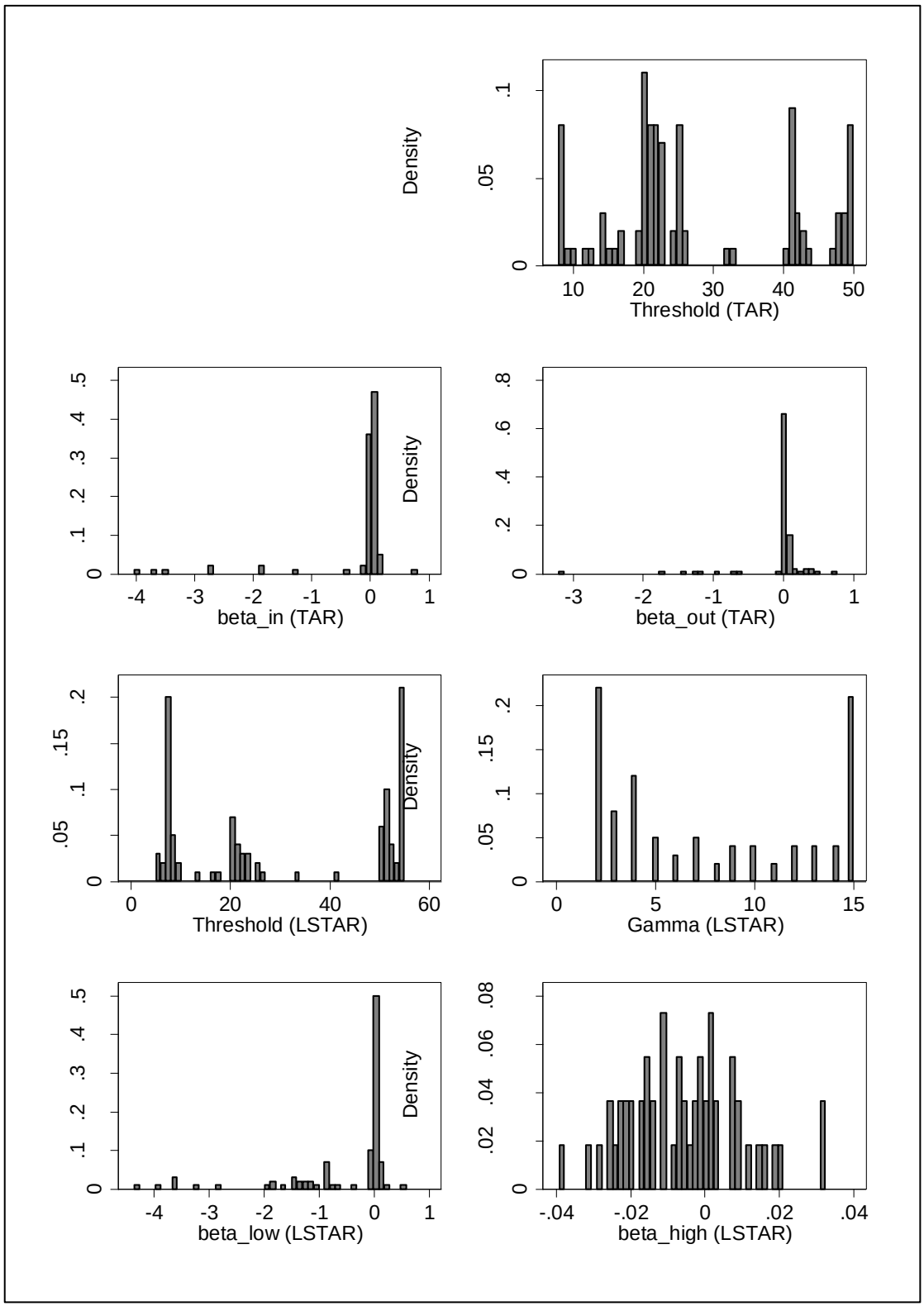


***Figure 62:* Bootstrapping for Developing Economies**

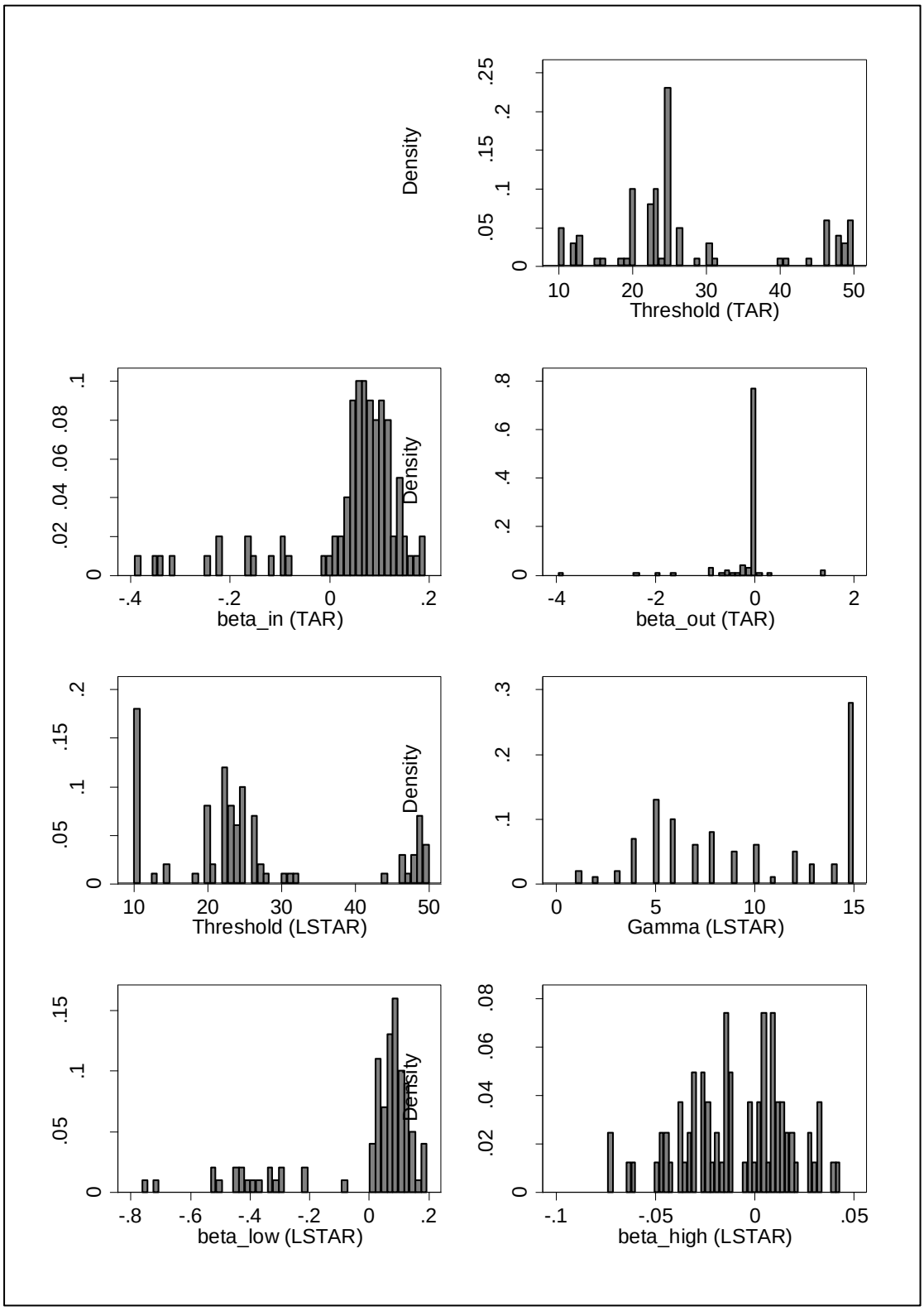
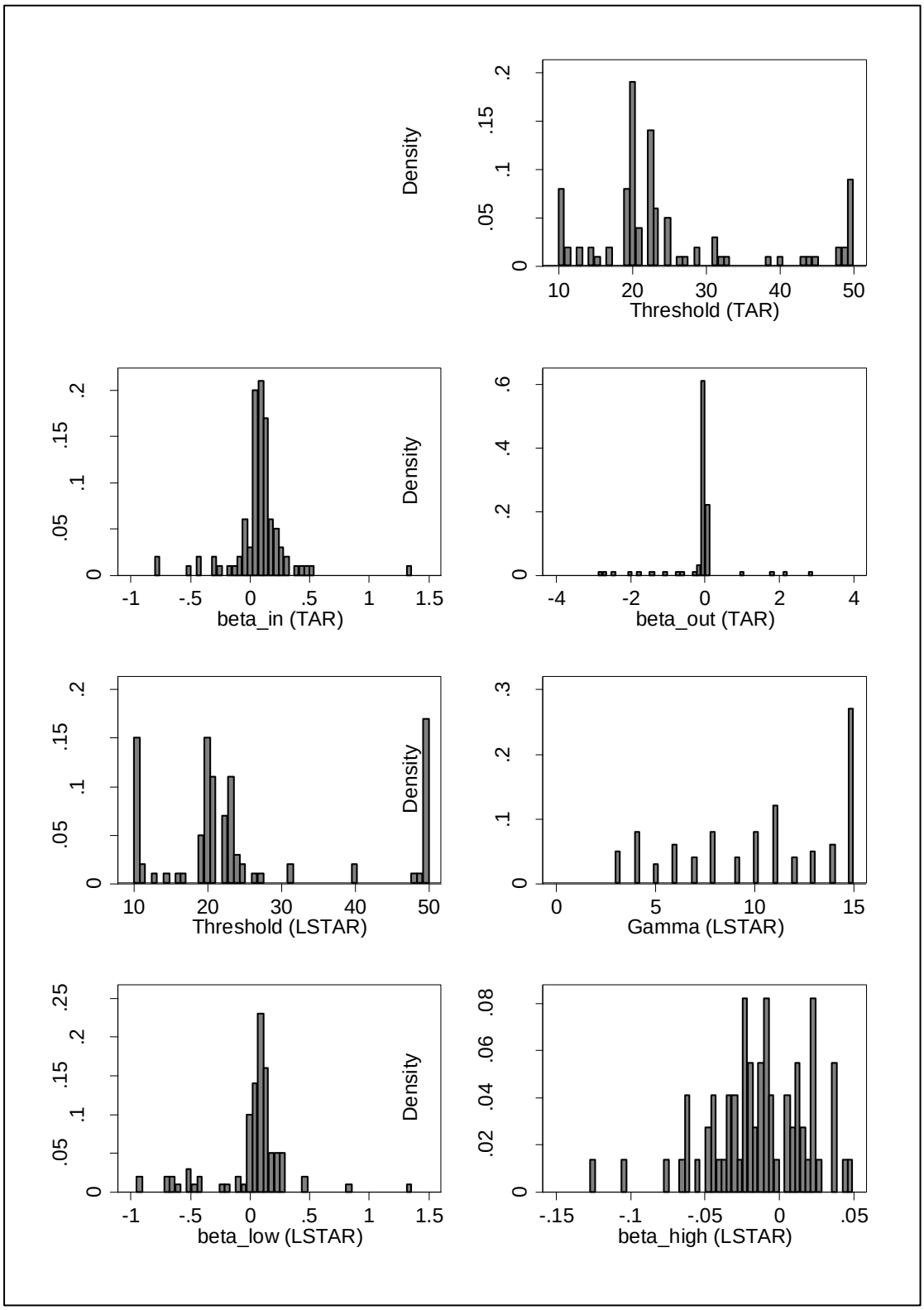


***Figure 63:* Bootstrapping for Emerging Market Economies**



Appendix 3: Country Group Classification

Developing Economies

Afghanistan
Albania
Algeria
Angola
Armenia
Azerbaijan
Belarus
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Bulgaria
Burkina Faso
Burundi
Cabo Verde
Cambodia
Cameroon
Central African Republic
Chad
China
Colombia
Comoros
Congo, Dem. Rep.
Congo, Rep.
Costa Rica
Cote d'Ivoire
Cuba
Djibouti
Dominica
Dominican Republic
Ecuador
Egypt, Arab Rep.
El Salvador
Equatorial Guinea
Eritrea
Ethiopia
Fiji
Gabon
Gambia, The
Georgia
Ghana
Greece
Greenland

Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
India
Indonesia
Iran, Islamic Rep.
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Korea, Dem. Rep.
Kosovo
Kyrgyz Republic
Lao PDR
Lebanon
Lesotho
Liberia
Libya
Macedonia, FYR
Madagascar
Malawi
Malaysia
Maldives
Mali
Mauritania
Mauritius
Mexico
Moldova
Mongolia
Montenegro
Morocco
Mozambique
Myanmar
Namibia
Nepal
Nicaragua
Niger
Nigeria
Pakistan
Palau
Panama
Papua New Guinea
Paraguay
Peru

Philippines
Romania
Russian Federation
Rwanda
Samoa
Senegal
Serbia
Sierra Leone
Somalia
South Africa
South Sudan
Sri Lanka
Sudan
Suriname
Swaziland
Syrian Arab Republic
Tajikistan
Tanzania
Thailand
Timor-Leste
Togo
Tonga
Tunisia
Turkey
Turkmenistan
Tuvalu
Uganda
Ukraine
Uzbekistan
Vanuatu
Venezuela, RB
Vietnam
West Bank and Gaza
Yemen, Rep.
Zambia
Zimbabwe

Transition Economies

Albania
Armenia
Azerbaijan
Belarus
Bulgaria
Cambodia
China
Croatia
Czech Republic
Estonia
Georgia

Hungary
Latvia
Lithuania
Kazakhstan
Kyrgyz Republic
Laos
Republic of Macedonia
Moldova
Poland
Romania
Russia
Slovak Republic
Slovenia
Tajikistan
Turkmenistan
Ukraine
Uzbekistan
Vietnam

Emerging Market Economies

Argentina
Bangladesh
Brazil
Bulgaria
Chile
China
Colombia
Hungary
India
Indonesia
Malaysia
Mexico
Pakistan
Peru
Philippines
Poland
Romania
Russia
South Africa
Thailand
Turkey
Ukraine
Venezuela