



## THESIS / THÈSE

### ADVANCED MASTER IN INTERNATIONAL AND DEVELOPMENT ECONOMICS

#### Financial Markets in Developing Countries

#### The Role of Financial Integration and Globalization

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*Award date:*  
2020

*Awarding institution:*  
University of Namur

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**FINANCIAL MARKETS IN DEVELOPING  
COUNTRIES**

**THE ROLE OF FINANCIAL INTEGRATION AND  
GLOBALIZATION**

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Academic year 2019-20

**Project presented as part of the requirements for the award of the  
Specialized Master in International and Development Economics  
Jointly organized by the ESLN and the ESL**



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## **ACKNOWLEDGEMENT**

I would like to express my thankfulness to the following people for the support, encouragement and assistance to my thesis.

First of all, I would like to express my deepest gratefulness to my promoter, Professor Yuliya Rychalovska, for her inspiration, advices and time that she devotes to my dissertation. She was always willing to give me valuable mentor and leading me through impasse situations.

I am heartily thankful for my family for all the supports and love I need to finish this piece of work. My heart also goes to my friends for their precious sharing and encouragements.

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## **I. INTRODUCTION**

### **1.1 Some stylized facts about macroeconomics and financial markets in developing countries:**

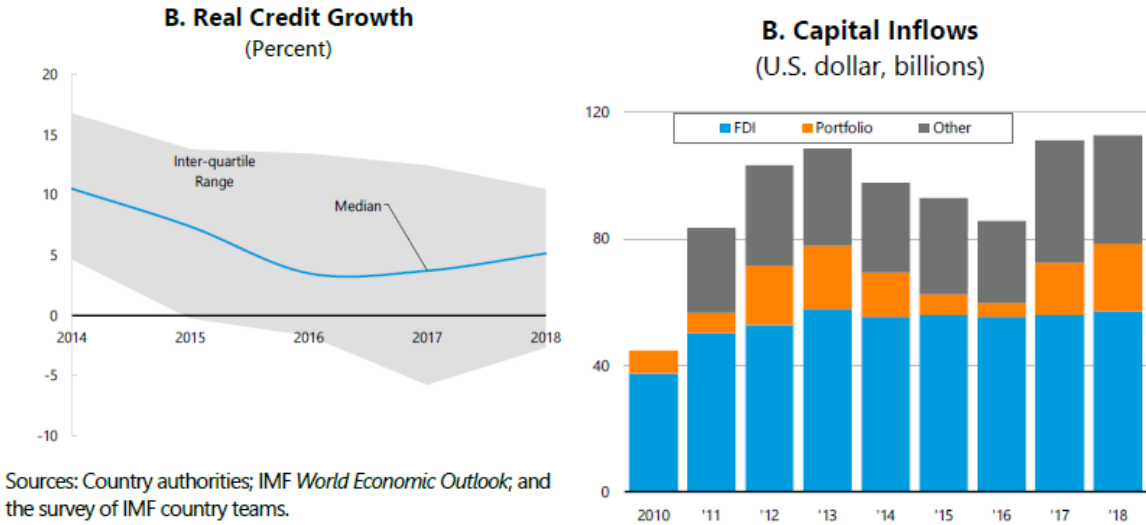
There is an undeniable fact that developing countries have often focus on building a sound banking sector before turning their resources to capital markets. The financial markets in low income and low middle income countries recent years has been improved in some certain dimensions. According to the Macroeconomic developments and prospect of Low Income Developing countries in 2019 by IMF, the following characteristics of macroeconomics and financial market in developing countries can be seen:

- The GDP growth stays stable during the last 3 years with average growth rate from 3.6% in 2016 to 5% during 2018 – 2019<sup>1</sup>.
- Inflation rates among countries with pegged exchange rates are less than 4% while inflation rates of countries with flexible exchange rates fluctuate at larger volume and average at around 6% to 8%.
- Real growth rate of private sector credit declined significantly from 2014 to 2016 before recovering by the end of 2018 (see figures below). For the relative value, credit to private sector in low income countries remained at about 20% of GDP between 2013 and 2018 which equals to only 50% of that in emerging countries.
- Access to finance has improved recently from low levels. Access to financial accounts almost doubled between 2014 and 2017, largely driven by increased access to mobile accounts, but remains much lower than in EMs. IMF analysis indicates that fintech is likely to have a strong impact in increasing financial inclusion in some countries (e.g., Bangladesh, Mali), while nonbank/ microfinance institutions are likely to play a more important role in other countries (e.g., Benin, Cambodia, Tajikistan).
- Access to international capital market has increase but not for all. FDI continues to be one of the main capital inflows to low income countries.

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<sup>1</sup> Macroeconomic developments and prospect of Low Income Developing countries in 2019 by IMF

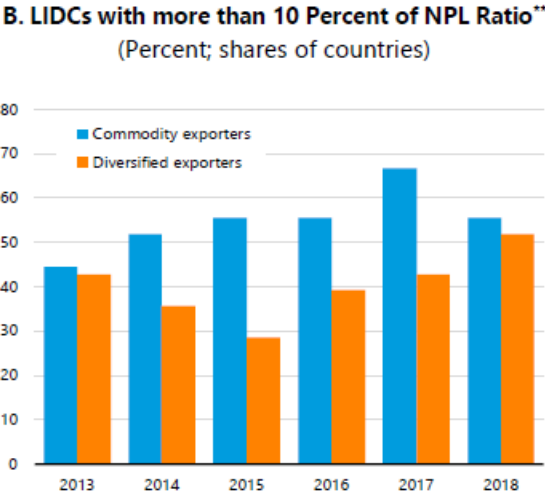
Figure 1: Real credit growth and Capital Inflows in Low Income countries



Sources: IMF World Economic Outlook.

- Bank failures have still been the main concerns in many low income countries especially regarding the problems with non-performing loans.

Figure 2 Low Income Countries with non-performing loan >10%



Sources: IMF report on Macroeconomic developments and prospect of Low Income Developing countries in 2019

## 1.2 Research Context:

There's a well-known fact that a **financial system** (including **financial markets, financial intermediaries and financial regulators**) plays the vital role in the economy by facilitating the economic growth, influencing all the stake holders of the economy and affecting economic welfare. Accordingly, the financial intermediaries perform the function of the channels to allocate funds or capital from lenders/investors to borrowers through financial markets. The governments and central banks also need to use financial markets to regulate the economy with its fiscal and/or monetary policy. There are three main economic functions of a financial market that can be mentioned including: price determination, liquidity improvement and transaction cost reduction. Theoretically and empirically, there are many studies proved that there is a positive relationship between the development of financial market and the growth of the economy.

The more developed the economies are, the more increase in demand for integrating between the financial system and opening the capital market. Thus, financial integration is stand for the openness of a country financial system to the regional or global markets. Meanwhile, financial globalization is defined as the global connection between countries through cross-border financial flows. The 2 concepts may be different principally and are also closely related. They both imply that the participants in the financial market of an economy widen to not only local lenders and borrowers but also foreign ones and therefore there will be capital inflows and outflows driving the country. The first appearance of internationalizing financial markets might be since the First World War but really speeded up since 1970s with the active roles and participations of mostly developed and industrial countries. Theoretically, the integration of financial system helps to efficiently and sufficiently allocate the capital in the economy and lower the cost of capital while diversify variety of risks. Empirically, many studies reveal that the countries may only benefit from the international financial integration only when those countries have reached a certain level of financial liberalization, otherwise, the reverse effect might be dominant. In other words, developing economies with weak institutions and policies and low level of market openness are more prone to be badly impact by the process of financial integration. Some of the side effects of the globalization and integration of finance sector to the financial development and economic growth are as follows: Firstly, developing countries are more vulnerable to financial recession than the developed one because of the dependence on the capital flows (which consist mostly of FDI) especially in the case of the countries with ill balanced national budget. The second problem is the misusing or poorly managing the capital

inflows and hence such money is used in low quality or high risk investments or speculative related deals such as real estate sector. Another potential issue is that financial integration requires the openness of trade also, which means that not only capital flows of the economy will change but also other determinants of macroeconomics including exchange rates, fiscal and monetary policy. Therefore, countries with weak regulation policy may confront to macroeconomic instability when integrate to international finance systems.

Many studies conducted to investigate the relationship between financial globalization and economic development cross countries from developed areas to developing or emerging countries or in a particular country. However, even research on a sample of developing countries, the characteristics of culture, geography and history of development and other factors of countries from different regions may illustrate different results.

In this thesis, I would like to investigate the role of financial sector development measures by de factor measurements including (i) Private sector credit, (ii) private sector credit by banks and (iii) stock market capitalization (% of GDP) on the growth of economic outcome. As mentioned above about the different characteristics of countries, country – specific variables represent the macroeconomics situations of countries including trade openness, inflation and government expenditures are also added to find the answers for the following questions:

- *1, Does financial market development promote economic growth in developing countries?*

The main findings I found after conducting the work is that there exist an inversed U shaped relationship of all three main explanatory variables on the growth rate of GDP per capita. The promoting effect of financial development on growth in low middle income countries are higher than that in low income countries. This thesis also tries to find the thresholds from which more does not mean better for the economy. The pre and post financial crisis is also included to see if the relationship between financial development and economic growth is affected by crisis and how it is.

As in the context of integration and globalization occurring everywhere, the role of financial integration on economic growth under the level of financial development of developing countries is also mentioned and considered in this thesis. As from the stylized facts about developing countries above, FDI inflows is among the main sources of capital flows in developing countries, this proxy is used to illustrates the financial integration to explain the second question:

- *2, Does financial integration promote economic growth in developing countries? If so, is this relationship impacted by the level of financial development?*

### **1.3 Research Structure:**

The thesis will first investigate the potential relationship between financial development and economic growth, starting with the regression without control variables to find the pure effect of financial development. Control variables then will be added to the models gradually. The first part will follow with analysis on 2 group of countries (low income and low middle income) before processing with the crisis factors.

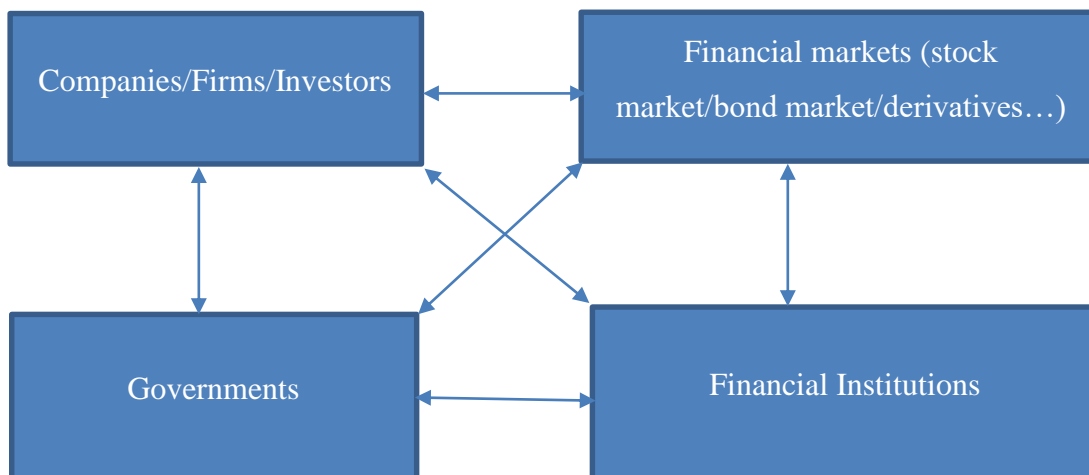
The second part of the thesis replicate nearly the same steps of the first part to examine the relationship of financial integration and growth.

The results will be discussed after each regression. The final part of the thesis is for conclusion and discussions.

## II. FINANCIAL MARKET DEVELOPMENT AND ECONOMIC GROWTH

Economic growth is defined as the increase in the income of a nation over time. In other words, it is the ability that a person can buy more goods and services with the same amount of work compared from one period of time to another. From the macroeconomic viewpoint, economic growth is rooted from the build-up of physical capital like machines and property and human capital including labour forces as well as the level of skilful and ability of the labours. It is obvious that an economy with better workers and more capital tend to generate more outputs and therefore their gross national product (GNP) or gross national product (GDP) increases. In fact, GDP or GDP per capita is one of the most widely used measurements for economic growth. Being a well-known important factor of the economy, a financial system including financial markets, financial intermediaries and financial regulators plays the vital role to smooth the funding flows between the lenders and the borrowers, the savers and the investors and therefore helps increase the efficiency of the production and investment.

The structure of the financial system can be illustrated as below:



The financial system's main functions are: to direct the capital flows from the lenders to the borrowers or the investors; to balance the maturity between deposits and credits and to reduce transaction costs. It may be said that financial markets and financial intermediaries help to allocate resources of the economy more efficiently. In other words, the better the financial system is, the higher the growth rate of the economy might be.

### 1. Theories of Financial market development and Economic Growth:

For many years, the relationship between finance industry and the growth of the economy has been discussed to see which one plays the important role and has impacts on the other. Generally

speaking, there are two schools of thought on the relationship between finance sector development and growth. On the one hand, there are those who hold the views that financial development is key to economic growth. On the other hand, the role of financial sector is denied and considered as the result of the growth. This project is devoted to concentrate on the impact of financial market development on economic growth rather than the opposite way. However, both viewpoints are still discussed in the theoretical review.

### ***1.1 Financial sector impacts on economic growth (supply leading):***

There are two main viewpoints on this theory. Accordingly, one proves that financial development poses positive impact on the economic growth while the other is dominated by the importance of financial repression to the growth.

The theories supporting positive link between financial development and growth explain that financial markets and institutions provide solutions to allocate capital more efficiently while reducing cost of transactions and diversifying risks.

Schumpeter (1911) is one of the first economist who came with the opinion that the appearance and development of finance sector led to the increase in productivity of investment thanks to the better capital channels which transfer funds to entrepreneurs with higher yield projects and hence, boost the growth of the economy. More recently, Levine (2005) stated in his papers on the relationship between economic growth and development of financial sector that the economy actually benefits from the financial development because of the 5 main advantages. First of all, via financial intermediaries, the transferring channels between individuals' savings and firms' borrowings are improves with lower information costs. Secondly, in order to meet the requirements of the financing from the financial system, the corporate governance must be strengthened and thus fostering the productivity as well as the return of investment projects. Thirdly, a sound financial system helps diversify the risks and encourage transparency which are good for long term goals of the economy. Fourthly, thanks to the appearance of financial institutions and variety of instruments especially the savings channels which helps increase the volume of capital for investment and growth. Last but not least, the application of advanced technology and openness of finance sector widen the opportunities to trade within countries and cross countries which in turn improve output of the economy.

In fact, while the explanations for the essential role of development of finance sector to the growth are undeniable, the signs of the relationship are quite mixed which are proved in many empirical studies by authors during the last few decades. Patrick in 1966 developed some

models to identify the causal link between these 2 factors and came to a conclusion that in the early stage of development the finance sector plays an important role in improving the economic situation which is expected to show in developing countries while for the case of developed countries the relationship is switched. In 1969, Goldsmith is one of the pioneer in implementing cross-country study in which he collected data for 35 countries during 1860 and 1963. His research revealed a positive link between financial development (measured by the ratio of financial intermediary assets relative to GNP) and economic growth. On the same line of thought, Rousseau and Wachtel (1998) also came to a conclusion that financial intermediaries in 5 industrialized countries play an important role in the growth of those countries over the years of 1879 and 1929. Also, in their another study paper in 2009 titled “What is happening to the Impact of Financial deepening on Economic Growth”, they found a strong effect of the level of financial depth measured by (intermediaries’ assets/annual output) and (intermediary assets + public corporate securities)/total financial assets on economic growth and this effect stays still through the financial liberalization time. This is the result of the research on 84 countries between 1960 and 2004. Levine, as one of the authors who contributes enormous attempts in this subject in 2000 together with his colleagues named Loayza and Beck, once again conducted a research in 74 countries over the course of 35 years (1960-1995) and still got the positive relationship between financial development and real sectors’ growth.

Along the history of the development of finance sector, after Schumpeter viewpoint on the finance market – growth relationship, Keynes (1936) thought that finance repression plays an important part in the development and this argument dominated for a long time until the 1960s. Financial repression implies the intervention of governments through regulations and policies such as interest rate ceilings, market restrictions, requirements for bank reserve of liquid assets/liabilities or so on. In fact, the economists who support Keynes’ viewpoints believed that low interest rates and inflationary monetary policies help to protect income from falling. Tobin (1965) performed a model on the way household producers spend their investment in production and cash and saw that financial repression leads to the decrease in money demand and as a result raise the capital for production and in turn lead to growth. The role of financial repression may vary from country to country depending on the situation of the government and their decisions on monetary and fiscal policies. Until early 1970s, Mc Kinnon and Shaw (1973) posed an argument against that of Keynes. They suggested that financial repression has negative impact on the efficiency of capital allocation and thereby holds back the economic growth and by liberalizing interest rates, the economy would reach to higher savings volume which may be

used for investment and production. Following the argument of Mc Kinnon and Shaw, numerous of studies have been done for empirical results. Kapur (1976), Galbis (1977) and Fry (1980) used dynamic models using various interest rates ceiling alternative factors like obligatory reserve requirements or loan/deposit ratio to see impacts of financial repression on growth of sectors. Their researches conclude that financial repression leads to stabilization in traditional sectors and captures higher investment in modern sectors.

### ***1.2 Economic growth determines the financial sector (demand-following theory):***

Also in this period of time, many hypothesis and theories denies the role of financial system in growing process and that financial development is actually the result of the economic development. It may be said that the development of banking and finance sector of an economy depends on the growth of that economy. The concept “economic backwardness” defined by Gerschenkron (1962) refers to the dependence of the role of banks on the level of industrialization and development of a country. In his research, he showed this relationship by taking examples of England, Germany and Russia where the need for a strong finance sector increases according to the descending order of industrialization process. In a nearly similar research on level of industrialization in England, Scotland, Germany, Belgium, France, Japan and Russia before 1870, Cameron (1967) finds that countries including Belgium, Russia, Scotland and Japan with financial systems at some certain advanced level actually promote the level of industrialization while the rest of the countries in this research either have an insufficient financial system (France) or confront the inappropriate policies (England) the financial system become the factor decided by the growth and industrialization. In other words, Cameron’s study shows that financial system may be both active and passive subject. The study of Cameron, however, focus more on the policies and financial services quality.

### ***1.3 Further empirical findings:***

As discussed, the relationship between financial development and growth seems to be quite controversial, the researchers also take varieties of ways to approach the issue.

Starting from the broad factors of the finance sector, Goldsmith (1969) measures data on assets of financial institutions in 35 countries in over 100 years and witnesses the positive relationship between the size of financial intermediaries and the size of the economy and from that delivers a conclusion that financial development and economy activities are positively correlated. As one of the pioneers in this subject, he may not sufficiently evaluate the problem as he did not

take into account the role of the financial market depth and the other important indicators besides the size of financial institutions.

Based on the work of Goldsmith, a number of economists develop their studies with consideration on more detailed indicators on financial development. King and Levine (1993) in their study in 80 countries with data collected for the period of 1960 – 1989 takes into account of a set of financial development indicators including financial intermediaries 'size, bank credit and bank credit to private sector to see impacts of those factors on four indicators for growth. Their findings are mostly positive and significant correlation between variables but the causality is not mentioned. Some other papers with similar choices of financial development indicators as in King and Levine' s work show quite the same line of findings and are summarized in the index of this project.

As within the last few decades the appearance and rapid development of stock markets in developing countries have become an eye catching dimension among economics researchers. Unlike banks which firms approach to get fund by becoming borrowers, stock market allows companies to raise capital by issuing shares. Not only being an effective channel to raise external funds, equity market is also known for its advantages of risk sharing and liquidity improvement to the economy. Actually, bank-based market and equity market are the two different and complementary markets to finance the economy's activities. Therefore, measurements on stock market development are mentioned in many recent studies to assess their impacts on economic growth. Based on the model of Mankiw, Romer and Weil (1992), Atje and Jovanovic (1993) incorporate a stock market indicators into the model to investigate the impact of equity market on the level and/or the rate of growth of the economic activity. They find that a well-developed equity market allows investors to hedge risks and hence tend to invest more in higher yield projects and that benefitted from being better informed by available information provided by stock market exchange, investors can gain higher rate of return on their invested projects and create more output for the economy. Inspired by the work of Atje and Jovanovic, Levine and Zervos (1998) add stock market capitalization and turnover ratio (which equals to the value of listed shares over stock market capitalization in their study in 42 countries over the period of 1976-1993 together with banking sector development indicators. The paper concludes that the growth rate of economic, capital accumulation and productivity growth can be predicted by the initial level of stock market liquidity and the development level of banking system. Many other studies also show the positive correlation between stock market and economic growth like that of Levine and Zervos including Rousseau

and Wachtel (2000) and Bencivenga (1996). Some others come up with opposite views as the volatility of equity market may trigger the stability of the macroeconomic (Singh, 1997) and the openness of stock market may spillover risk sharing and thus slow down the growth.

Up until this part of the project, only linear relationship (both positive and negative) between finance sector development and economic growth is discussed. In fact, a lot of recent works on this subject see the relationship as non-linear, which is graphically inverted U-shaped to be precise. When examining the relationship between inequality in income and the level of development of financial institutions, Greenwood and Jovanovic (1990) find out that at the beginning of the development of finance sector, the barriers to finance access are higher for the poor and only wealthy men benefit from financial system. But when the financial system grows bigger and better enough, more and more people get access to the finance and benefit from it. In 2004, Rioja and Valev (2004) analyze the data sample of 74 countries over the time of 1960-1995 and find that along with the development of finance sector measured by ratios of Private credit, liquid liabilities, commercial banks' assets/commercial + central banks 'assets to GDP, economic output increase to reach to a point where after this threshold the growth effect of financial development has no longer existed. Later on in 2006, Shen and Lee pool 48 countries in the period of 1976 till 2001 with explanatory variables cover bank development indicators and stock market development indicators in lending, liabilities, stock market development and some other control variables including level of government spending, inflation, secondary school enrollment rate and so on. By using linear model, the results show the positive correlation between stock market development and economic growth while banking sector does not affect on GDP per capita. The conditional variables then introduced in the models and the results on the role of banking sector is changed and its development facilitate the economic growth only in high income countries or countries with policies to protect shareholders or financial liberalization while the banking advancement poses negative effect on middle income countries or countries with financial crisis or higher corruption. When the authors take consideration to try the square of variable on bank development, they see the relationship between bank development and growth is a weak inverted U-shape look alike which is a sign of non-linear relationship existence. Another research from Cecchetti and Kharoubi (2012) working on the sample of 50 developed and emerging countries in the period of 1980 – 2009 to measure effects of the size of financial system on the growth of the economy. Here are some of the main important findings from their work: (i) private credit to GDP boosts the growth of productivity until the ratio is larger than 1 and once private credit is over GDP, the growth of

productivity starts to decrease; (ii) there is a threshold that larger financial system does not means better productivity and the reasons behind are blamed for the competition between financial sector itself with other sectors in the economy.

To summarize, the role of finance sector and its development in the growth of economic activities are undoubted which are proved in a large number of papers and researches. However, how it affects the economic growth and to what extend are still a controversial issue and varies country by country depending on the macroeconomic factors as well as other historical conditions of the economy.

## **2. Variables and Proxies:**

Based on the theoretical literature and empirical papers, this section defines variables that are considered to explain the relationship between financial development and economic growth. Depending on the methodology, testing models employed. There are a lot of variables which are potential determinants of the economic growth including indicators of financial institutions development (liquid liabilities, private sector credit to GDP, financial institutions' assets to GDP...), financial market development (for example: stock market capitalization, private debt securities to GDP or stocks traded to GDP) and other control variables. This dissertation examines the correlation between economic growth (measured by real GDP per capita) and variables represent the development of financial markets including: private sector credit to GDP, bank credit to private sector divided by GDP and stock market capitalization to GDP. A set of control variables including trade openness measured by total imports and exports divided by GDP, CPI inflation and ratio of government spending to GDP are also introduced to the model.

I.1. ***Economic growth***: as in most of previous studies, GDP/capita is considered the most popular estimator of economic growth. In this thesis, the growth rate of GDP/capita is defined as the natural logarithm of per capita real GDP.

$$\rightarrow \text{GROWTH} = \text{LOG} (\text{GDP}/\text{CAPITA})$$

I.2. ***Financial system development***: the financial system development might be illustrated through the improvement of the financial intermediaries which play an important role in providing financing sources to the economy and the expansion of equity market where firms call for capital through issuing stocks. Therefore, many previous papers and studies take into account these characteristics to choose the appropriate measurements.

(i) *Private credit*: measured by the ratio of domestic credits provided by formally financial intermediaries to the private sector over the GDP of a specific country. As mentioned earlier in this thesis, the financial intermediaries play an important role in the development of financial system and therefore the volume of credits issued by financial institutions is an effective way to show the evolution of finance sector of a country. Even though private credit does not indicate the advantages of reducing transaction cost or information asymmetric reduction, the higher share of private credit to GDP implies an improvement in financial services provision of the financial system. Regarding the empirical works, there are a number of studies investigating the relationship between private sector credit and economic growth. As explained by the effect of financial development on boosting the economic growth, King and Levine, 1993a and 1993b, Levine, Loayza, and Beck, 2000 found a positive impact of domestic credit to private sector and GDP per capita. Aliero et al (2013) use autoregressive distributed lag to estimate the relationship between private sector credit and growth in Nigeria over the period of 1974 – 2010 and found a long term relationship between the duo. Olowofeso et al (2015) study the impacts of private sector credit on Economic growth in Nigeria since 2000 till 2014 and confirm a significant and positive impact of private credit expansion on the development of the economy. However, credit expansion does not always pose optimistic effects on the economy. In fact, there are some arguments about the role of financial intermediaries in general and banks in particular in leaking financial crisis because of the uncontrollable growth of domestic credit and thus lead to economic downturn (Kaminsky and Reinhart 1999). Inspired by this line of thought, Loayza and Ranciere (2006) study on 75 countries with data collected from 1960-2000 and conclude that financial institutions co-move with output growth in the long run while in the short run the movement of the two factors are towards the inverse direction. Cecchetti and Kharroubi (2012) investigate that developed countries with higher ratio of private credit to GDP grow slowly while countries starting at low level of private credit take off better. They also identify the turning point where more credit does not go with higher growth rate.

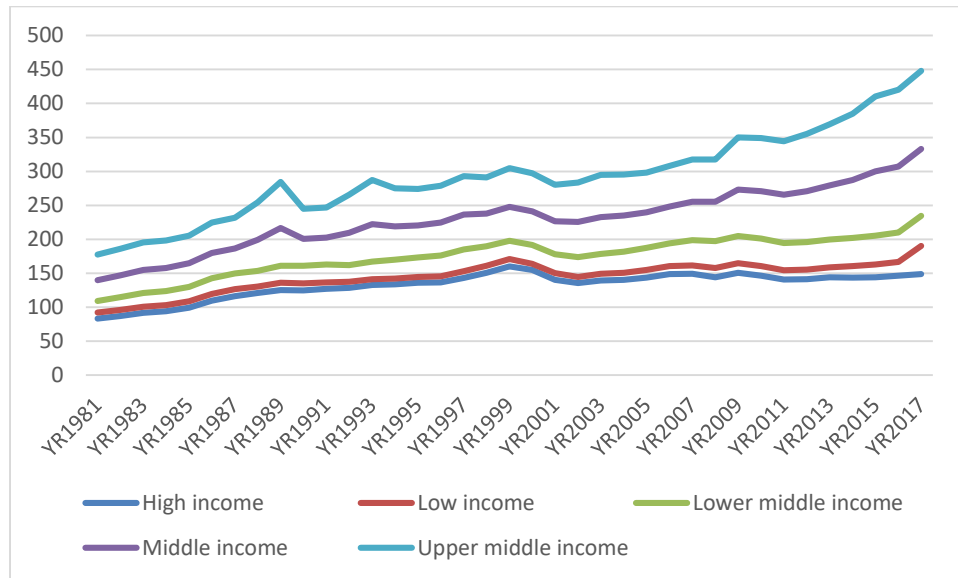
The figure below shows the historical data on domestic credit to private sector (private credit) share to GDP by country group<sup>2</sup>. Accordingly, the percentage of

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<sup>2</sup> Data and classification collected from World Bank data.

private credit to GDP of high income countries is the highest and this ratio decreases respectively with the decrease of the level of countries' income. This implies a positive correlation between countries' income and financial development.

Figure 3: Credit to Private sector by country group<sup>3</sup>



The figure also illustrates the upward trend along the history line proved the expansion of the credit market. Pairing with the histogram chart of the logarithm of GDP/capita of low and low middle income countries which is parabolic shaped like, we might expect that the expansion of private credit leads to the increasing in the economic growth of these countries until the credit claims reach to a certain share of GDP that make the output growth to start decreasing.

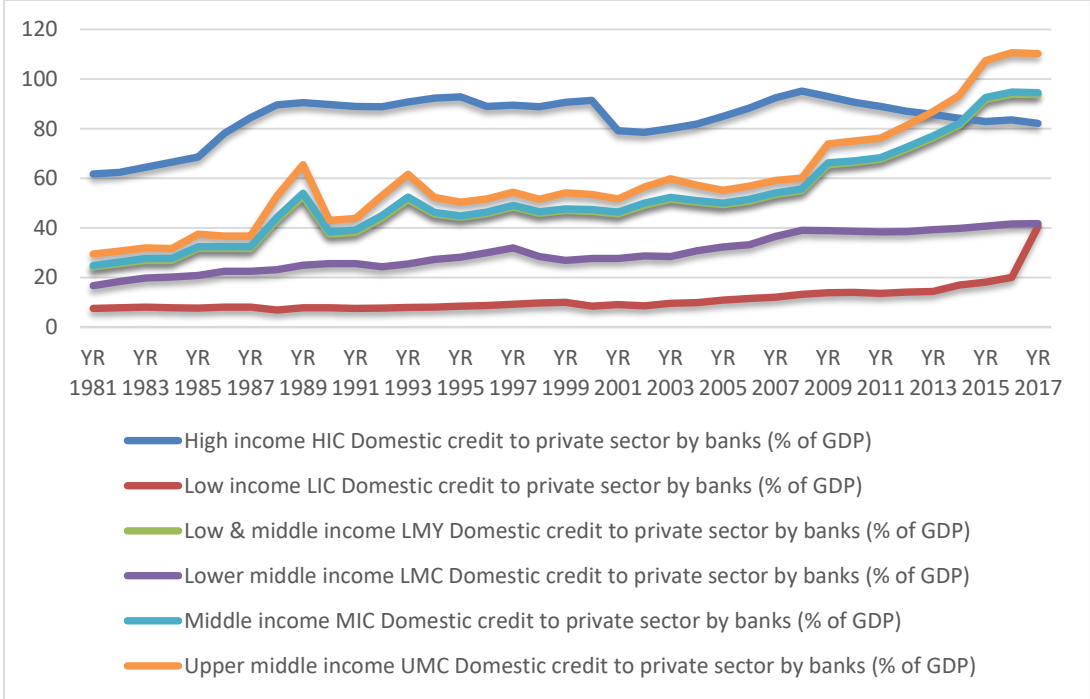
➔ PRIVATE CREDIT = DOMESTIC CREDIT TO PRIVATE SECTORS/GDP

- (ii) *Private credit by banks*: measured by the ratio of domestic credits provided by banks to the private sector over the GDP of a specific country. Similar to domestic credit to private sector, private credit by banks is also among the best estimators of the advancement of the financial system of developing countries. In fact, banking system is considered the main channel providing credit and fund for the economy. However, the link between bank credit to the growth of GDP are also mixed. Akpansung and Babalola (2012) see the positive impact of private sector credit provided by banks and economic growth in Nigeria using data from 1970-2008. Levine and Zervos (1998) research on the relationship of bank development and market liquidity and GDP growth and find that bank development increases the GDP

<sup>3</sup> Data and classification collected from World Bank data.

growth by 0.7 percentage point. In 2000, Levine et al use GMM estimators to see the impact of larger private credit financed by banks on growth and find significant and economic impact. On the opposite side, Gantman and Dabos (2012), however, find that total bank claims to private sector in 98 countries covering from 1961 to 2015 does not influence on economic growth. Other papers also find small or no effects including Rousseau and Wachtel (2011), Beck et al (2013)... Cecchetti and Kharroubi (2012) hold the opinion that the differences in market structures of countries lead to variation in the research results and that bank-based financial systems poses impacts differently to those of market-based financial systems. Their study on 50 advanced and emerging countries over the period of 1980 – 2009 was extended from private credit to private credit financed by banks and still find the correlation between this variable and GDP growth is a U shaped like except that the turning point is closer to 90% of GDP instead of 98% to more than 100% in the case of total domestic credit to private sector. In this thesis, the data on private credit by banks from 78 countries are collected from 1960 – 2018. The figure below shows the ratio of domestic credit to private sector by banks (% of GDP) in different income group countries<sup>4</sup> and show generally an upward trend.

Figure 4: Credit to Private sector by banks in different country groups<sup>5</sup>



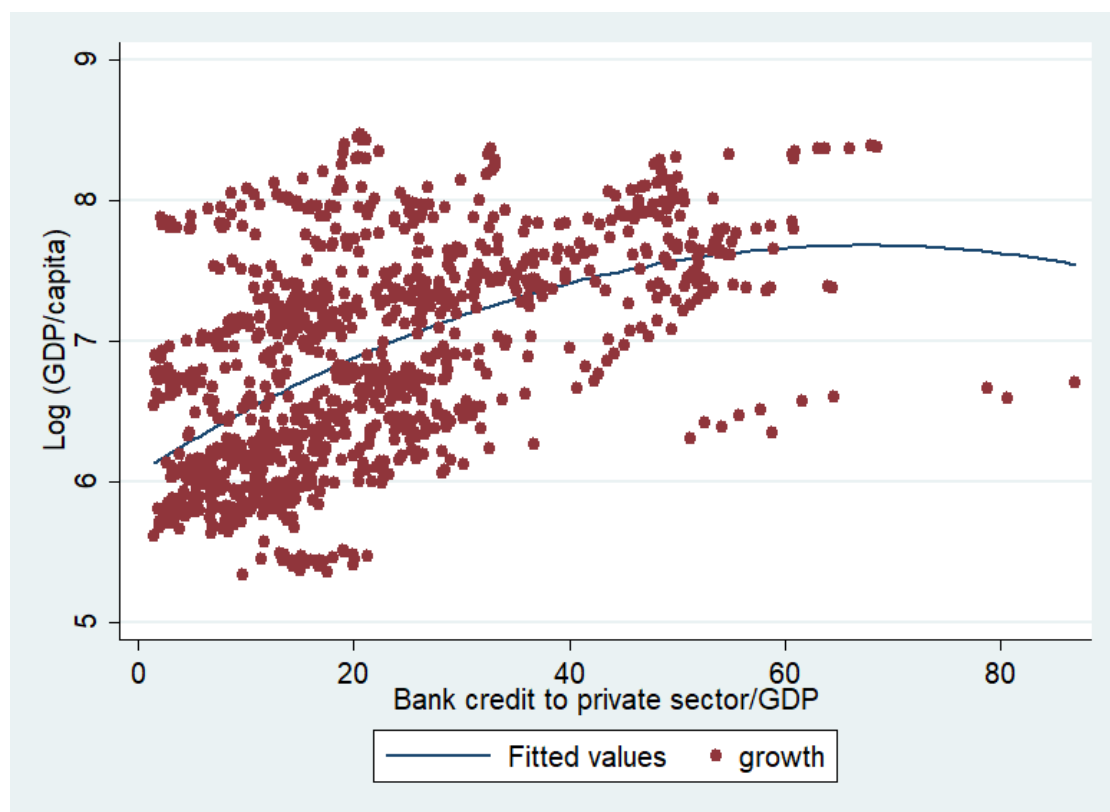
<sup>4</sup> Countries classification by World Bank

<sup>5</sup> Data and classification collected from World Bank

A two-way scatter plot is also drawn to see the potential relationship between bank credit to private sector and GDP growth and a parabolic shape is expected.

➔ PRIVATE CREDIT BY BANKS = DOMESTIC CREDIT TO PRIVATE SECTORS  
BY BANKS/GDP

Figure 5: A two-way scatter plot for bank credit to private sector/GDP and log of GDP/capita <sup>6</sup>



- (iii) *Market capitalization/GDP*: measured by the ratio of market capitalization over the GDP of a specific country.

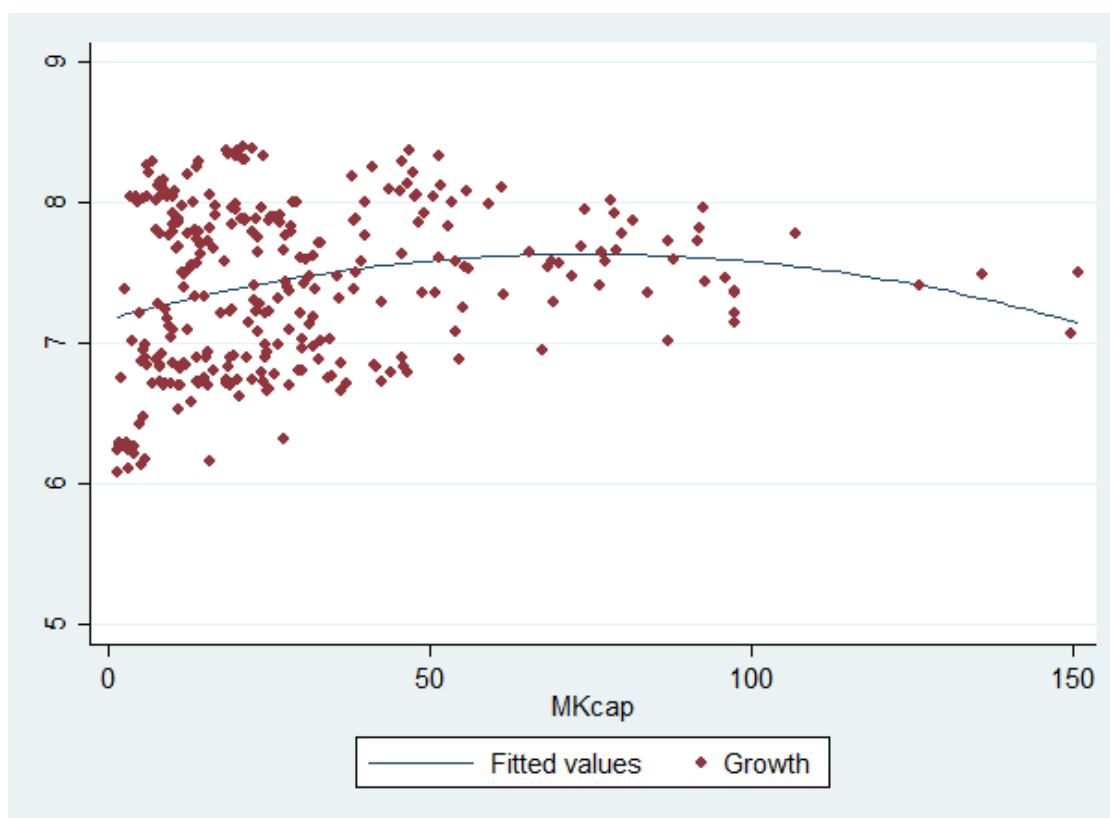
The rapid growth of equity markets in developing countries recently has attracted attention of economists and researchers about its potential impact on economic growth. Stock market is the place where companies can raise funds for financing by issuing their shares. Another advantage of stock market is the liquidity therefore the more developed equity market, the more benefits the players get thanks to the better diversified risks and better information disclosure. Levine and Zervos (1998) use cross-country regressions with data from 47 countries in 1976-1993 to estimate the impact of stock markets on growth and conclude that stock markets have a significant influence on the growth. Market capitalization is also used as a proxy of stock market size in the research of Rousseau and Wachtel (2000) when they regress data from 47 countries between 1980 and 1995 and get the same finding as that in Levine and Zervos (1998). In a doctoral thesis by Xiu Yang (2012) with dataset of 63 countries over the period of 1990-2005,

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<sup>6</sup> Data collected from World Bank

she compares her findings with that of Rousseau and Wachtel (2000) and find that the effect of stock market size (measured by market capitalization) on growth is not significant compared to the previous period. On the opposite viewpoints, some other research do not approve that stock market induce growth. Singh (1997) holds the opinion that stock market volatility could worsen the macroeconomic situation. Devereux and Smith (1994) believe that while financial market integration may allow risk sharing, it also leads to growth rate falling and moves it away from the Pareto efficient rate. In this thesis, the stock market capitalization to GDP data are collected from the World Development Indicator of World Bank. The data are not balanced with data available for only 16 countries between 1993 to 2018 with some missing data in some years maybe because of the report from countries. The two-way scatter plot for those data are drawn to see the expected relationship between GDP/capita growth and market capitalization/GDP. It can be seen that most of the low income and low middle income countries are expected to see the positive relationship between the two variables and for some cases where the market capitalization to GDP is high enough, it may be followed by a slower growth rate of GDP/capita.

Figure 6: A two-way scatter plot for stock market capitalization/GDP and log of GDP/capita<sup>7</sup>



➔ MKCAP = STOCK MARKET CAPITALIZATION OF LISTED DOMESTIC COMPANIES/GDP (%)

## II. Data summary:

The data used for this study collected from World Development Indicators (World Bank) with data for 78 developing countries from 1960 to 2018<sup>8</sup>.

Dependent variable: Real per capital GDP growth = log (real GDP/capita)

Explanatory variables: private sector credit/GDP, private sector credit by banks/GDP, stock market capitalization/GDP and other control variables (inflation, trade openness and government consumption).

The summary description for the data sample is as below:

Variable	Obs	Mean	Std. Dev.	Min	Max
countries	4,602	39.5	22.51726	1	78
year	4,602	1989	17.03124	1960	2018

<sup>7</sup> Data collected from World Bank

<sup>8</sup> See annex for the list of countries observed in this data sample

growth (=log gdp/capita)	3,477	6.824075	.7203458	4.976639	8.470922
private credit	3,262	18.73399	15.8585	0.402581	133.136
private credit by banks	3,277	17.72823	14.99755	0.335095	133.136
gdp/capita	3,477	1177.558	840.8376	144.986	4773.92
government spending	3,015	14.55935	7.840438	0	135.809
inflation	3,471	42.81702	589.519	-98.7038	26765.9
market capitalization/GDP	292	30.62058	26.73889	1.34834	150.729
trade openness	3,268	64.44894	35.02244	0.167418	376.224

### 3 Model specification:

Generally speaking, most of the studies on the correlation between economic growth and financial market development rely on an econometric model which then is examined by employing regression method. There are three popular sorts of commonly used data in research: cross-sectional, time series and panel data. The thesis applies panel data to test hypothesis because:

- Panel data covers both characteristics of cross sectional and time-series data.
- Panel data regression is considered to enhance the freedom degrees and decrease the multicollinearity, which lead to better estimate.
- This technique allows to adopt a great number of observations, a more flexibility in choosing variables.
- The advantages in reducing the misleading deviation in aggregate data analysis and control the heterogeneity.

The simple Ordinary Least Squares (OLS) regressions will be used to test the models below.

Inspired by the paper of Cecchetti and Kharoubi and other previous studies, the econometric model for the period involved is:

$$Growth_{it} = \alpha + \beta_1 FD_{it} + \beta_2 FD_{it\_square} + \beta_3 Control_{it} + \varepsilon_{it} \quad (1)$$

Where:

$Growth_{it}$  = Economic Growth of a country  $i$  in year  $t$

$FD_{it}$  = Financial development of country  $i$  in year  $t$  (in each case, FD will be replaced by a specific variable)

$Control_{it}$  = control variables for country  $i$  in year  $t$ .

$\varepsilon_{it}$  is the unobservable variable effects of company  $i$  at time  $t$ .  $\alpha$  is the constant intercept which is the same for all companies across time.  $\beta_j$  ( $j=1,2,3$ ) may be different between the countries but they are time-invariant dimensions.

As expected an inverted U – shape to illustrate the correlation between dependent variables and explanatory variables,  $\beta_1$  is expected to be positive and  $\beta_2$  is expected to be negative

#### 4. Results and discussion:

##### 4.1 Private sector credit to GDP and Growth:

*Table 1: OLS results for model (1) with Private Credit as financial development*

	(1)	(2)	(3)	(4)
VARIABLES	growth	growth	growth	growth
private_credit	0.0379*** (0.0018)	0.0368*** (0.0017)	0.0365*** (0.0018)	0.0365*** (0.0018)
private_credit2	-0.0002*** (0.0000)	-0.0003*** (0.0000)	-0.0003*** (0.0000)	-0.0003*** (0.0000)
trade openness		0.0065*** (0.0004)	0.0063*** (0.0004)	0.0063*** (0.0004)
government expenditure			0.0014 (0.0018)	0.0013 (0.0018)
inflation				0.0000 (0.0000)
Constant	6.2653*** (0.0269)	5.8778*** (0.0335)	5.8621*** (0.0376)	5.8635*** (0.0377)
Turning point	82.45	70.14	71.59	71.6
Observations	2,384	2,200	2,043	2,038
R-squared	0.279	0.386	0.381	0.381
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

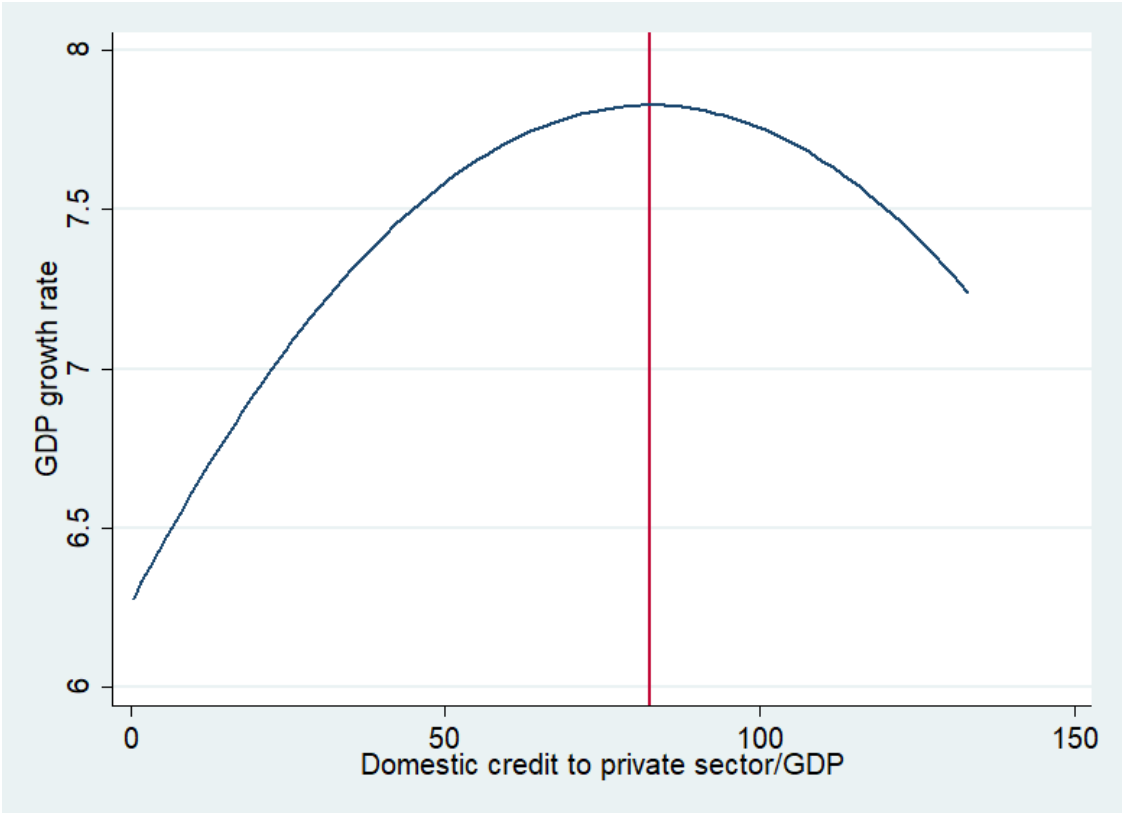
The panel regression is used with data collected. From the results, column (1) of the table above shows the result of the model with no control variables. Continuing across the columns of the table, the control variables are added sequentially to see the impacts of those specific country characteristics on the impact of private sector credit on the economic growth. In each case, the turning point is also calculated following the defined estimates in the models.

Here we can see what we expected, the relationship between domestic credit to private sector is parabolic. In all cases, the results are significant statistic and the coefficient of the level of financial development is around 0.038 and gradually decrease with the addition of control variables but not very much different. The coefficient on the quadratic term are all negative and around -0.0002 implies that the private sector credit has positive effect on economic growth before changing the effect to the opposite way from the turning point. The turning point are

calculated and is estimated in case of no control at 82.45 meaning that in developing countries when the private credit is below 82.45% of GDP the more credit claimed to the private sector, the faster the economy grows. However, for those countries with the ratio of private credit to GDP above 82.5%, the increase in private credit does not lead to the increase in GDP/capita growth anymore. When adding control variables, the turning point starts to decrease and close to around 70%.

The two-way scatter plot is drawn again with the turning point to illustrate the result of the model.

Figure 7: 2 way scatter plot for private credit and economic growth with threshold value



In order to see the different role of private credit to economic growth in poorer countries compared to richer countries, the data sample are divided into 2 categories including low income countries and low middle income countries. The regression results are as below:

Table 2: OLS results with Private Credit as financial development and Country group

Countries classification	Low Income	Low middle income
VARIABLES	Growth	Growth
private_credit	0.8577	0.0385***
	(0.4472)	(0.0017)

private_credit2	-0.0580	-0.0003***
	(0.0299)	(0.0000)
trade openness	-0.0095**	0.0065***
	(0.0037)	(0.0004)
government expenditure	0.2488**	0.0003
	(0.0911)	(0.0016)
inflation	-0.0238*	0.0000
	(0.0106)	(0.0000)
Constant	1.4477	5.8390***
	(2.1848)	(0.0320)
Turning point	7.3952	69.4104
Observations	12	2,574
R-squared	0.8334	0.3955
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

It can be seen from the results that private credit as a measure of financial sector development does not have significant impact on low income countries while the relationship between this variable and growth are significantly positive in low middle income countries and the positive correlation turns to negative if the share of private credit volume to GDP gets higher than 69.4%. Also in low middle income countries, trade openness helps improve the income per head at significant level while government spending and inflation does not at all.

The influence of financial crisis in the relationship between financial development and economic growth is examined in this project. As the financial crisis has impacts on every sectors of the economies which may hindered the economic activities as well as the development of the financial system. Therefore, this project will investigate the influence of crisis in 2008 on the relationship of financial development and economic growth.

*Table 3: OLS results with Private Credit as financial development in Financial Crisis*

VARIABLES	before 2008	after 2008
	Growth	Growth
private credit	0.0361***	0.0376***
	(0.0026)	(0.0032)
private credit^2	-0.0002***	-0.0003***
	(0.0000)	(0.0000)
trade openness	0.0068***	0.0049***
	(0.0004)	(0.0008)
government expenditure	0.0004	0.0021
	(0.0018)	(0.0039)
inflation	0.0000	0.0029
	(0.0000)	(0.0026)
Constant	5.8239***	5.9825***

	(0.0357)	(0.0906)
Turning point	76.6743	69.987
Observations	1,914	672
R-squared	0.3914	0.3151
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

As can be seen in the regression results, private credit (as percent of GDP) still poses positive impact on economic outcome at significant level and the 2008 crisis seems not affect the role of the other control variables on economic growth as well. The only thing that catches attention is the reduction in the threshold where the ratio of Private credit/GDP post crisis to well below 70% compared to that of 76.6% computed before 2008. This may be explained that private sector although plays an important part in economic activities yet still a risky and vulnerable sector and gets hurt easily from the crisis.

#### 4.2 Bank credit to private sector to GDP and Growth:

The same way of doing panel regression is implemented with Private credit by banks as independent variable. The results are as follows:

*Table 4: OLS results with Private Credit by Bank as financial development*

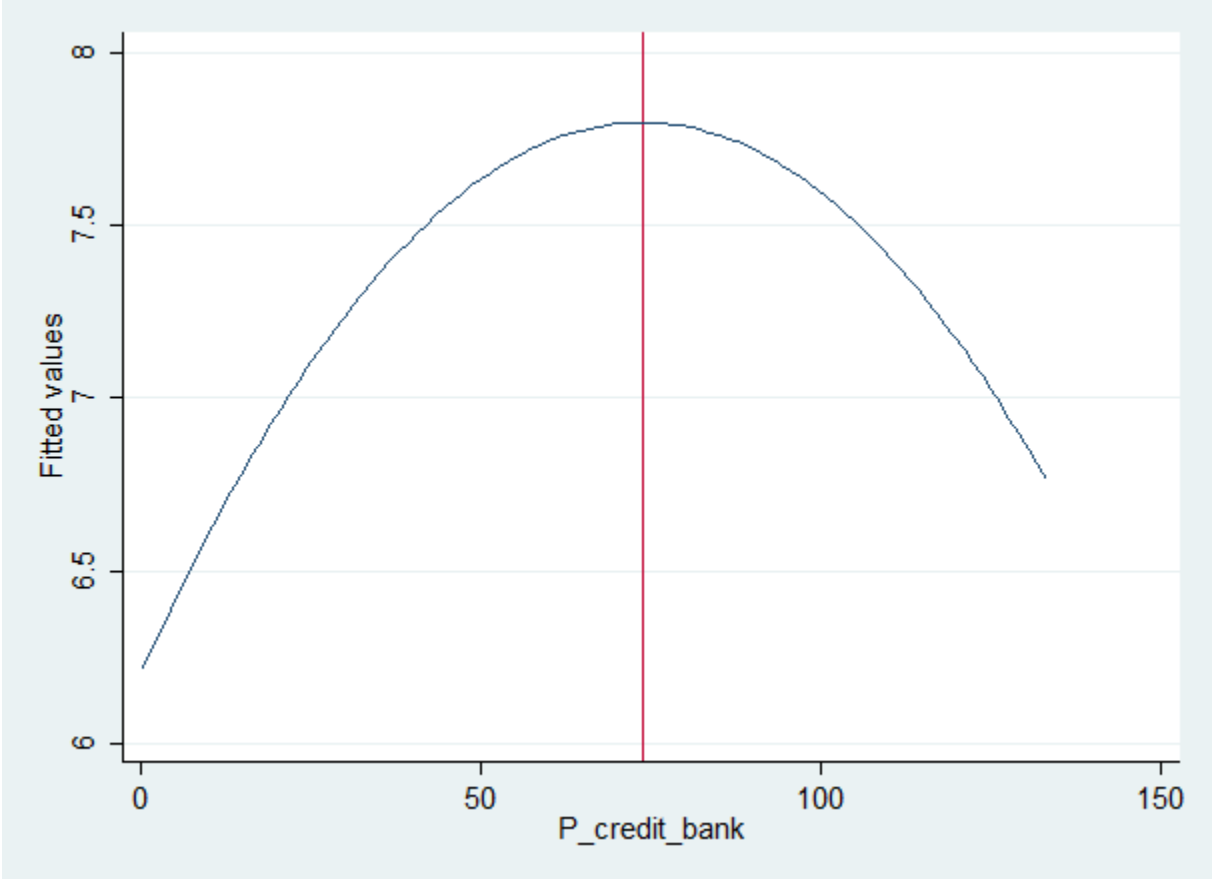
VARIABLES	(1) growth	(2) growth	(3) growth	(4) growth
Bank credit	0.0402*** (0.0018)	0.0387*** (0.0017)	0.0386*** (0.0018)	0.0386*** (0.0018)
Bank credit ^2	-0.0003*** (0.0000)	-0.0003*** (0.0000)	-0.0003*** (0.0000)	-0.0003*** (0.0000)
trade openness		0.0069*** (0.0004)	0.0066*** (0.0004)	0.0065*** (0.0004)
Government expenditure			0.0011 (0.0018)	0.0011 (0.0018)
Inflation				0.0000 (0.0000)
Constant	6.2640*** (0.0261)	5.8570*** (0.0333)	5.8427*** (0.0373)	5.8441*** (0.0374)
Turning point	73.68	63.83	64.11	64.12
Observations	2,387	2,202	2,045	2,040
R-squared	0.2787	0.3868	0.3810	0.3802
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

The results again follow our expectation with the U-shaped like effect of bank claims to private sector on per capital GDP growth. The coefficients of the explanatory variable are all significantly positive with 1% standard errors and around 0.038 which are a little bit higher

than the cases of total private sector credit. This implies that bank credit to private sector alone may have stronger impact on economic growth than the total domestic credit put into private sector. The turning point in this case are lower than that in the previous case with the ratio of private credit by banks is just 73.68% of GDP without controls and about 64% with control variables. This may raise a signal to developing countries where expansion of bank credit should be carefully managed especially if the banking systems are underdeveloped and the risk management are not well established.

The two-way scatter plot is drawn again with the turning point to illustrate the result of the model.

Figure 8: two-way scatter plot of private credit by banks and growth with threshold value



The comparison between financial development and growth relationship in Low Income and Low middle income countries once again is done with respect to bank credit to private sectors. Now, there are definitely differences between the two group of countries. While banking system development plays an important role in promoting economic growth in low middle income regions, there is no significant relation between bank loans to private sector (as percent of GDP) and income growth detected in low income countries. The turning point for low middle income country to benefit from private sector lending financed by banks is 64% of GDP.

*Table 5: OLS results with Private Credit by Bank as financial development and Country Group's Growth*

Countries classification	Low Income	Low middle income
VARIABLES	growth	growth
bank credit	0.5688 (0.6137)	0.0406*** (0.0017)
bank credit^2	-0.0392 (0.0414)	-0.0003*** (0.0000)
trade openness	-0.0077 (0.0051)	0.0068*** (0.0004)
government expenditure	0.1987 (0.1276)	0.0001 (0.0016)
inflation	-0.0192 (0.0157)	0.0000 (0.0000)
Constant	2.8304 (2.9664)	5.8206*** (0.0318)
turning point	7.2631	64.0426
Observations	12	2,581
R-squared	0.7666	0.3960
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Considering the impact of global financial crisis in 2008 in this relationship, there are not many differences between the before and after crisis. In fact, bank credit to private sector seem to promote growth better after the crisis even though the restrictions for ratio of bank credit to private sector as percent of GDP reduces from 72% before crisis to just only 63.72% post crisis. Maybe because of being cautious and better manage risk among banking sector after the hit of the crisis helps better the economic activities of developing countries.

Table 6: Results with Private Credit by Bank as financial development and Financial crisis

	Before 2008	After 2008
VARIABLES	growth	growth
bank_credit	0.0375*** (0.0029)	0.0404*** (0.0032)
bank_credit2	-0.0003*** (0.0001)	-0.0003*** (0.0000)
Trade openness	0.0069*** (0.0004)	0.0056*** (0.0008)
Government expenditure	0.0009 (0.0018)	-0.0005 (0.0040)
inflation	0.0000 (0.0000)	0.0032 (0.0026)
Constant	5.8100*** (0.0361)	5.9536*** (0.0898)
Turning point	72.1288	63.7227
Observations	1,921	672
R-squared	0.3916	0.3131
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

### 4.3 Market capitalization to GDP and Growth:

This part is to see the impact of equity market development on GDP growth rate. The panel regression is run with data collected and show the results as follows:

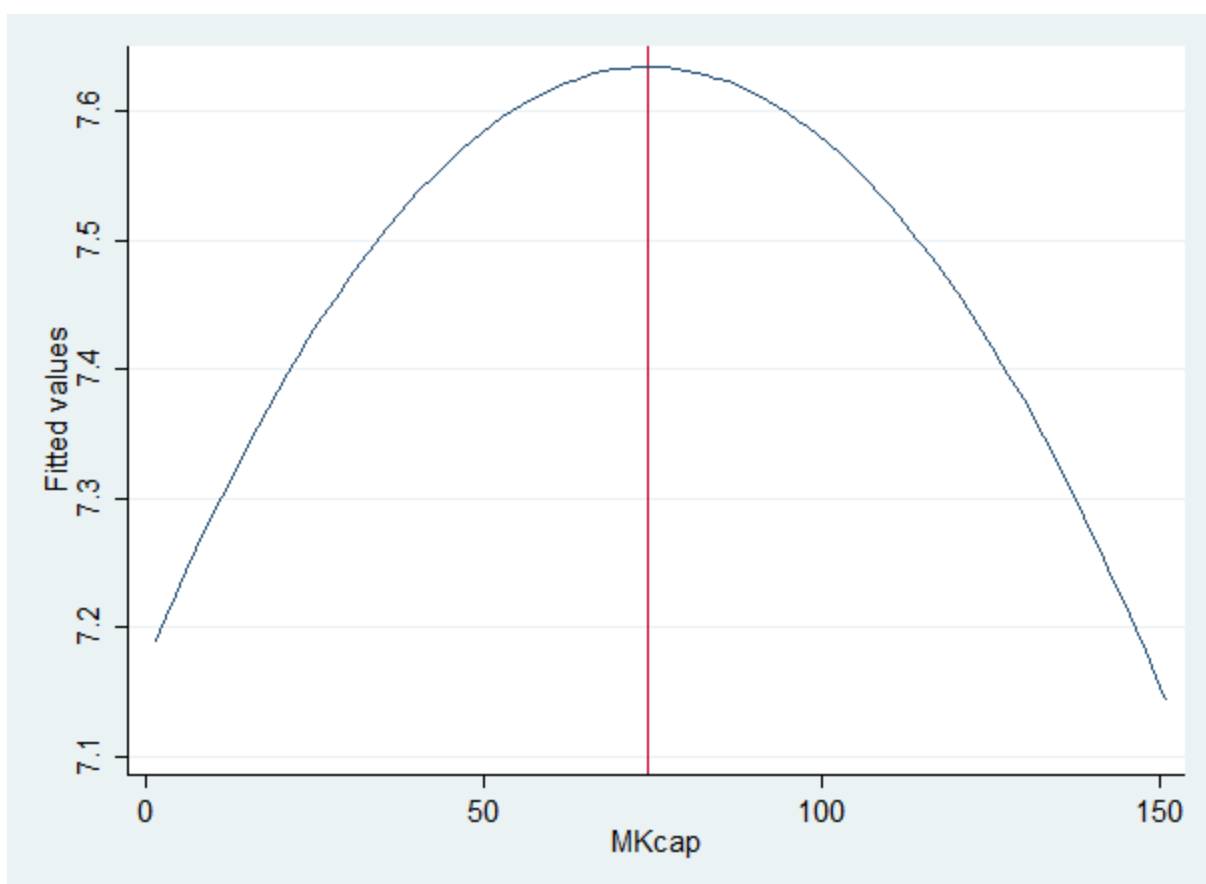
Table 7 OLS results with Market Capitalization by Bank as financial development

	(1)	(2)	(3)	(4)
VARIABLES	growth	growth	growth	growth
market capitalization/GDP	0.0124*** (0.0034)	0.0127*** (0.0036)	0.0103*** (0.0035)	0.0098*** (0.0035)
(market capitalization/GDP)^2	-0.0001*** (0.0000)	-0.0001** (0.0000)	-0.0001** (0.0000)	-0.0001* (0.0000)
trade openness		0.0062*** (0.0008)	0.0047*** (0.0009)	0.0047*** (0.0009)
government expenditure			0.0260*** (0.0052)	0.0246*** (0.0054)
inflation				-0.0027 (0.0029)
Constant	7.1731*** (0.0688)	6.7388*** (0.0876)	6.5763*** (0.0945)	6.6278*** (0.1095)
turning point	74.17	71.71	75.51	74.33
Observations	292	285	275	275
R-squared	0.0531	0.2076	0.2693	0.2717

Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Again, the parabolic relationship is witnessed in this regression result. All estimations are significantly positive at 1% standard errors. However, the value of all the coefficient of market capitalization in all cases are just about a third of the coefficient of bank credit to private sector. In other words, the development of the stock market in developing countries also lead to the increase in the GDP per capita but smaller impact compared to the impact of the banking sector development. The threshold in equity market is around 74% implying the ratio of market capitalization over GDP in developing countries under this thesis should not go beyond 74%. Otherwise, the higher market capitalization does not mean the better the economic growth.

*Figure 9: two-way graph of Market capitalization/GDP and GDP growth*



Due to the shortage of dataset on stock market capitalization of low income countries which may be rooted from the under-development of equity market in low income countries, the regression for this variables in low income countries cannot be implemented.

Regarding the effect of financial crisis in the year of 2008, no significant correlation between the development of equity market and economic growth is found both before and after the crisis. However, the stock market seems to be obstacles for economic growth after the crisis. This

ambiguous results may need further research for better explanation as within the limitation of this project, the quality and quantity of data sample may not be enough to provide the full details of the role of stock market and growth under the financial crisis.

*Table 8: OLS results with Market Capitalization by Bank as financial development and crisis*

	before 2008	after 2008
VARIABLES	growth	growth
Stock market capitalization	0.0059 (0.0038)	-0.0044 (0.0071)
Stock market capitalization square	-0.0000 (0.0000)	0.0000 (0.0001)
Trade openness	0.0110*** (0.0012)	0.0009 (0.0010)
government expenditure	0.0012 (0.0075)	0.0284*** (0.0064)
inflation	-0.0014 (0.0028)	-0.0154* (0.0079)
Constant	6.3650*** (0.1161)	7.4291*** (0.2052)
turning point	74.4025	49.4034
Observations	149	126
R-squared	0.4706	0.2177
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

### **III. FINANCIAL MARKET DEVELOPMENT AND ECONOMIC GROWTH**

#### **1. Literature Review**

##### **Definition and concepts:**

Financial integration first appeared in developed countries several decades ago and become popular with the single currency and market for European financial services. The concepts of financial integration and financial globalization are often mentioned these days and sometimes are used interchangeably. They are, in fact closely related but different in principle. According to the study on the effects of Financial Globalization on Developing countries reported by Prasad et al (2003) published by IMF financial globalization refers to the increasing linkage in global level of financial flows while financial integration is defined as the connection of a country to the international capital markets. They are obviously closely associated and therefore in this project, the two terms are used interchangeably. Also, the concept of financial integration/globalization in this thesis is defined as the process of a domestic financial system incorporate to the international markets. The local financial systems therefore, witness the increase in the capital flows across countries and the development of its financial key players including debt and equity market, lenders, borrowers, investors, financial institutions and etc. Financial integration requires the equal access to financial resources provided via financial intermediaries or markets for both those who are shortage of capital and those who are in excess of capital. Actually, Brouwer (2005) states that financial integration is the process the financial markets of an economy open and trade with those from the rest of the world. In other words, it means that there are increasing cross border flows of capital between financial markets and the price and returns of financial assets or investments tend to be equal regardless of their origins. Another way to measure the level of financial integration of a country is the appearance of foreign financial institutions in that country such as foreign banks, foreign insurance companies or funds...

##### **2. Theories of Financial Integration and Economic Growth<sup>9</sup>:**

There are countless of researches on this nexus during the last century both in developing countries and developed countries. Generally speaking, most of the studies conclude with the undeniable benefits of financial globalization including: risk sharing effect, efficient capital

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<sup>9</sup> See annex for a summary table of main researches mentioned in this literature review

allocation, better financial development thanks to the increasing competitiveness between financial institutions and markets across countries and many other effects. These effects can be divided into 2 channels: direct and indirect one. And both channels theoretically support the opinion that financial integration does promote economic growth in developing countries particularly.

### ***2.1 Direct channels through which Financial integration promote Economic growth:***

- Efficient capital allocation: Many economists highly agree that by integrated to international markets, participant countries have to reduces the barriers to access to financial markets and investors in all over the world are allowed to invest in wherever and whatever they think that will yield them better returns. In neoclassical model, financial integration is proved to foster capital flows between rich and poor countries which increase the investment in poor countries and solve the problems of excessive capital in rich countries. With the increasing inflows of capital from stable markets, the low income countries have chances to attracts more investment with lower cost which in turn help improve the economy. Another way to explain this is that the openness of financial system generates transparency and lower information cost which in turn facilitate the capital allocation (Obstfeld 2008, Kose et al 2009). On the same line of thought, Levine (2001) and Stultz (1999) both agree that financial integration enhances the liquidity of equity market and improve the banking system effectiveness.

- Risk – sharing effect: with the appearance of international institutions and various financial assets leads to a larger pool of investment and participants as well as instruments which facilitate risk diversification. Obstfeld (1994) holds the view that risk diversification allows economies to invest in riskier projects which returns higher yield. Henry (2000) and Stulz (1999) in their studies believe that risk sharing and diversification allows firms to increase their investment and thus increasing growth while at the same time, the more capital flows the more liquid the domestic stock market becomes. This eventually reduce the cost of capital in developing countries. However, what may happen if financial liberalization with the effect of risk sharing drive the stakeholders to become higher risk takers? Kose et al (2009) study the impact of financial globalization on the degree of international consumption risk sharing for a large set of industrial and developing countries hold the opposite line of thought compare to the theory. To be precise, their study finds no evidence on the risk sharing effect of financial openness in developing countries while on contrary, the risk sharing has been improved among developed countries. They reason this situation in under-developed countries for the composition of capital assets that those countries absorb from external resources. Therefore,

there may be a possibility that the linkage between financial integration and development may depend on the integration levels of a country.

- Technology and know-how transferring effect: with the increasing in the inflows of foreign investment, the domestic market also benefits from the technology advancement from the industrial economies and improves productivity for better growth (Borensztein, De Gregorio, and Lee (1998), and G.D.A. MacDougall (1960).

- Financial system development: As mentioned above, the liberalization of financial sector increases the transparency among financial system players and competition level between institutions. As in research of Levine (1996) and Caprio and Honohan (1999), increase in capital flows increase the liquidity of domestic equity market and also the appearance of foreign financial institutions with various financial instruments and services drive the domestic institutions to improve their products' quality and services. Agree with this viewpoint, Jappelli and Pagano (2008) explain that the higher competition between domestic financial systems and the outlanders leads to a lower cost of financing for companies and individual clients in developing countries and hence leads to an expansion of the domestic financial markets. As discussed in the previous part of this personal project, there are evidences both theoretical and empirical one on the relationship between financial sector development and economic growth, so it can be referred that the more integrated to global market an economy is the better for the economic growth of it.

## ***2.2 Indirect channels through which Financial integration promote Economic growth:***

- Appropriate policy commitment: Together with the process of liberalizing the financial system, authorities and policy makers also need to consider to adjust their legislation system to adapt to the larger playground with partners from all over the world. This requires each country to follow more disciplined macroeconomic policies and reduce the probability to implement wrong policies (Obstfeld 1998). As a result, more sound policies are followed by more stable macroeconomic positions and therefore spur economic growth.

- Signalling: this channel is closely related to the above channel where financial integration is considered as a "signal" of a country's willingness to implement macroeconomic policies to loose barriers in cross border capital transferring. Bartolini and Drazen (1997) proved that by deleting the limitations of capital outflows like inflation tax regime or cut down budget deficit can improve the volume of capital inflows in countries including Egypt, Columbia, Italy, Mexico, Spain, Uruguay and the UK.

### ***2.3 Further empirical evidences:***

Theoretically, it can be said that there is a positive linkage between international financial globalization and the development of the economy. In fact, the empirical results on this nexus are mixed.

On the one hand, many research found evidences that approve the positive correlation between financial integration and development. Epaulard and Pommeret (2005) see the relationship between the openness of capital market in developing and emerging countries during the period of 8 years between 1990 and 1998 and increase of welfare growth. Their paper on the topic “Financial Integration, Growth and Volatility” concludes that gains from widening access to global markets and from increase in FDI are nearly equally and significant to growth and FDI leads to an increase in domestic productivity which can be understand as an increase of 0.5 pp of growth per year. Few years after that, in 2008, Toyoda and Quinn confirm the impact of capital account liberalization and economic growth by using data from 94 industrial and emerging countries between 1955 and 2004. The role of capital flows and economic growth is also witnessed in the paper of Gheeraert and Mansour (2005) in which they regress the variables proxies including FDI and Portfolio investment and GDP growth in 45 countries during the period of 1975-2001. Ahmed (2011) conduct a study on 25 Sub-Saharan African countries from 1976 and 2008 using GDP growth and International Financial Integration index and conclude that integration of financial system drive the growth but indirectly. Many other researches also support the positive nexus between financial openness and economic development (Klein and Olivei 2008, Baltagi et al 2009, Le et al 2017. Looking at the role of financial integration in a different angle, Sahoo et al (2019) collected data for 60 countries from 1971 to 2015 and find the FDI as a proxy of financial integration reduces the volatility output of developing countries and suggest that FDI should be a channel to stabilized the economies.

On the other hand, there are also numerous of empirical works that find no evidence or weak proof on the relationship between financial integration and development. Edison, Levine et al (2002) find no significant effect of financial integration and economic growth in 57 countries in 1980 – 2000 period. The authors used GDP per capita growth, IMF restrictions, Quinn’s measure and capital flows including stock of capital flows, flow of capital, stock of capital inflows, inflows of capital computed from FDI, Portfolio Investment and total financial claims) as variables for their models. Osada and Saito in 2010 also used IFI computed from FDI, equity liabilities and debt liabilities and real per capita GDP growth data of 83 countries during the course of 33 years for their work and report that the effects of financial integration differ considerably. To

be precise, the effects are: (i) FDI has positive impact on economic growth while equity and debt liabilities have reverse impact; (ii) Countries with better institutions and developed financial markets benefit more from financial integration; (iii) Financial integration has positive impact on international trade volume and financial market development which in turn boost the economic growth. Further studies in poor and low income countries like the work of Menya et al (2014) and David et al (2015) find no impact of financial liberalization on development in most African countries. To explain the reverse effect of financial integration on economic growth and stability of poor countries, Easterly et al, (2001); Kose et al (2003) reveal that the sudden changes in capital flows (i.e increase of capital flows in good time and decrease in bad time) lead to the fluctuation of economic output. This argument seems to be reasonable and was proved through the financial crises in 1980s and 1990s where vulnerable economies in Southeast Asia and Latin American suffered the most from the large swings of capital flows direction.

The controversial findings from the previous studies have raised questions about the actual impact of financial integration and economic growth. Many arguments and explanations are discussed on the results of previous studies. Firstly, the works may focus on either on the integration process in banking sector or in stock markets and hence, the findings might vary sector by sector. Secondly, the proxies used to measure the level of financial integration play an important role in the output of research. There are two kind of financial integration measurement: de jure and de factor. De jure measurements are used widely and early with the proxies regarding the removal of policies restrictions and current capital account management. However, these proxies do not take into account the extent that a country integrate to international markets. Recent studies prefer to use de factor measurements to evaluate the level of financial integration of an economy. De factor indicators including some popular variables like shares of FDI and Portfolio Investment over GDP, which means that they put more weight on the direct effect of financial integration on growth. Finally, the initial conditions of a country such as the macroeconomic situations, the development and stability of political institutions (Law et al 2003) or the level of trade openness (Do and Levchenko 2004) may also be the root of the issue. As discussed above about the link between whether a country is an industrial or a developing country and its reaction to the shock of capital flows, a concern about whether or not exist a turning point of financial integration that an economy need to reach out before it can benefit from the effects of financial globalization. There are some works attempting to explore these thresholds. For example, Yilmazkuday (2011) sees that The relationship between finance and growth in poor countries is affected by small government sizes while rich countries are

affected by large government sizes and poorer countries require higher level of trade openness to boost the finance-growth nexus. Kose et al. (2006) states that “various threshold effects play an crucial part in outcomes of financial globalization”. Chen and Quang (2012) use the dataset of 80 countries over the period of 1984-2007 with panel threshold regression model show that institutions’ quality and the level of financial development as well as inflation are the decisive factors for the financial integration – growth nexus. Farhad et al (2019) implement a research in 34 East Asian and Pacific countries from 1996 to 2017 to examine the existence of non – linear relationship between financial integration and development. A significant inverted U shaped relationship between financial integration and development is found as well as a maximum ratio of external debt/GDP at 87.8% is the turning point that a country can benefit from financial openness. Beyond this rate, financial integration no longer induces growth.

### **3. Variables and Proxies:**

Based on the theoretical literature and empirical papers, this section defines variables that are considered to explain the relationship between financial integration and economic growth. Depending on the methodology, testing models employed. There are a lot of variables which are potential determinants of the economic growth including indicators of financial institutions development (liquid liabilities, private sector credit to GDP, financial institutions’ assets to GDP...), financial market development (for example: stock market capitalization, private debt securities to GDP or stocks traded to GDP) and other control variables. This dissertation examines the correlation between economic growth (measured by real GDP per capita) and FDI inflows to GDP which represents the financial integration. Regarding the variables used to measure financial integration: FDI inflow to GDP is used as this is considered one of the most used variables in the previous studies as a de factor measurement and because FDI inflows are one of the main sources of capital for developing countries. A set of control variables including trade openness measured by total imports and exports divided by GDP and CPI inflation and Financial Development Index from IMF data are also introduced to the model.

### **IV. Data summary:**

The data used for this study collected from World Development Indicators (World Bank) with data for 31 developing countries<sup>10</sup> from 1990 to 2017 and Financial Development Index Database (IMF).

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<sup>10</sup> See annex for the list of countries

Dependent variable: Real per capital GDP growth = log (real GDP/capita)

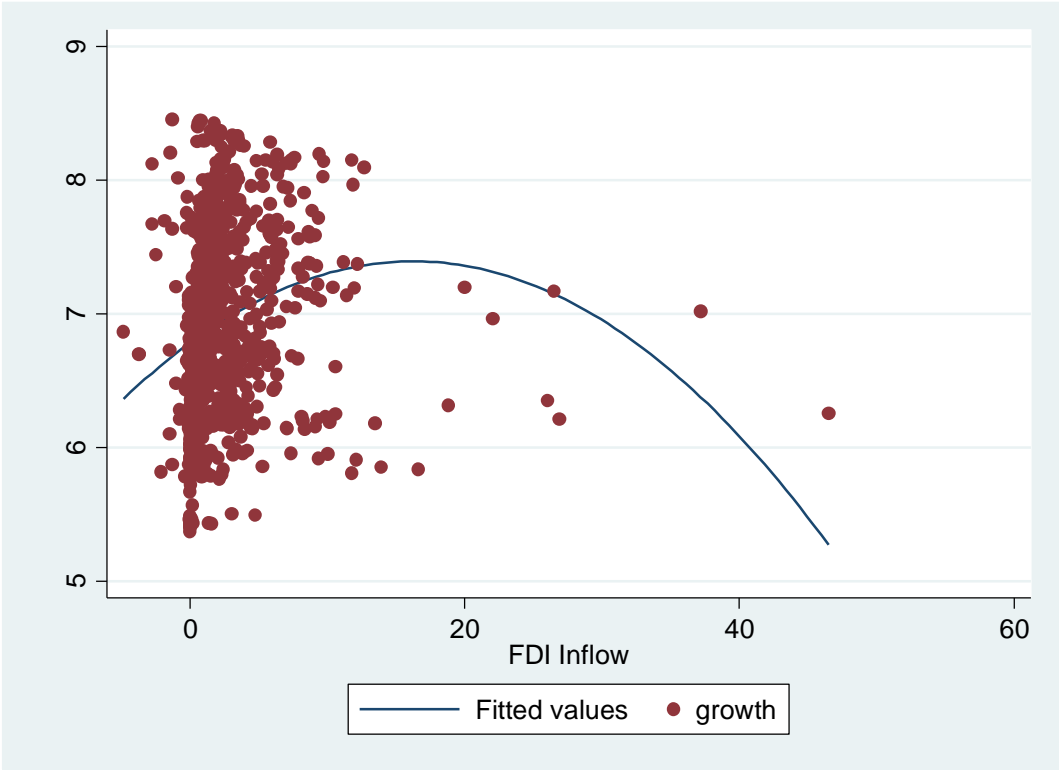
Explanatory variables: FDI inflows/GDP, and other control variables (inflation and trade openness, financial development index including index for financial development (FD), financial institutions(FI) and financial markets (FM)). FD represents the general score for the level of financial sector development of a country while FI is the score graded for the level of depth, access and efficiency of financial institutions and FM is the score for the same 3 categories for financial markets of a country.

The summary description for the data sample is as below:

stats	growth	FDI Inflows	inflation	Trade openness
mean	6.923464	2.453416	9.1081	61.10989
sd	0.696567	3.623416	12.74693	26.63012
min	5.366627	-4.85229	-8.97474	11.08746
max	8.457803	46.4937	132.8238	175.798

A two-way scatter plot between GDP growth and FDI inflow is also drawn to see the potential correlation between the 2 variables:

Figure 10: A two-way scatter plot between GDP growth and FDI inflow



## V. Model specification:

OLS regression will be used to test the hypothesis and models as the previous part of this project.

The econometric model for the period involved is:

$$Growth_{it} = \alpha + \beta_1 FDI_{it} + \beta_2 FDI_{it\_square} + \beta_3 Control_{it} + \beta_4 FDindex_{it} + \varepsilon_{it} \quad (2)$$

Where:

$Growth_{it}$  = Economic Growth of a country  $i$  in year  $t$

$FDI_{it}$  = Foreign Direct Investment Inflows

$Control_{it}$  = control variables for country  $i$  in year  $t$ .

$FDindex_{it}$  = Financial development for country  $i$  in year  $t$ .

$\varepsilon_{it}$  is the unobservable variable effects of company  $i$  at time  $t$ .  $\alpha$  is the constant intercept which is the same for all companies across time.  $\beta_j$  ( $j=1,2,3$ ) may be different between the countries but they are time-invariant dimensions.

As expected an inverted U – shape to illustrate the correlation between dependent variables and explanatory variables,  $\beta_1$  is expected to be positive and  $\beta_2$  is expected to be negative.

The pure cross-sectional OLS regression is used with data collected. At first, the regression between only financial integration and growth is run to see the pure effect of FDI inflows on economic growth which we can see in the first column of the of the table below. Continuing across the columns of the table, the control variables including trade openness and inflation are added to see the impacts of those specific country characteristics on the impact of inflow of capital on the economic growth. Finally, each one out of 3 financial development indexes is included in the model above to see if there is any impact of the level of financial development of a country in general and the level of development of financial intermediaries and financial markets on the nexus of financial integration and growth. The data samples are then also divided into low income country (LIC) and emerging countries (EM) (classified by IMF and World Bank) and apply the same steps of regression above to see the differences/similarities between the two groups of countries.

## 6 . Results and discussion:

### 6.1 All pooled countries:

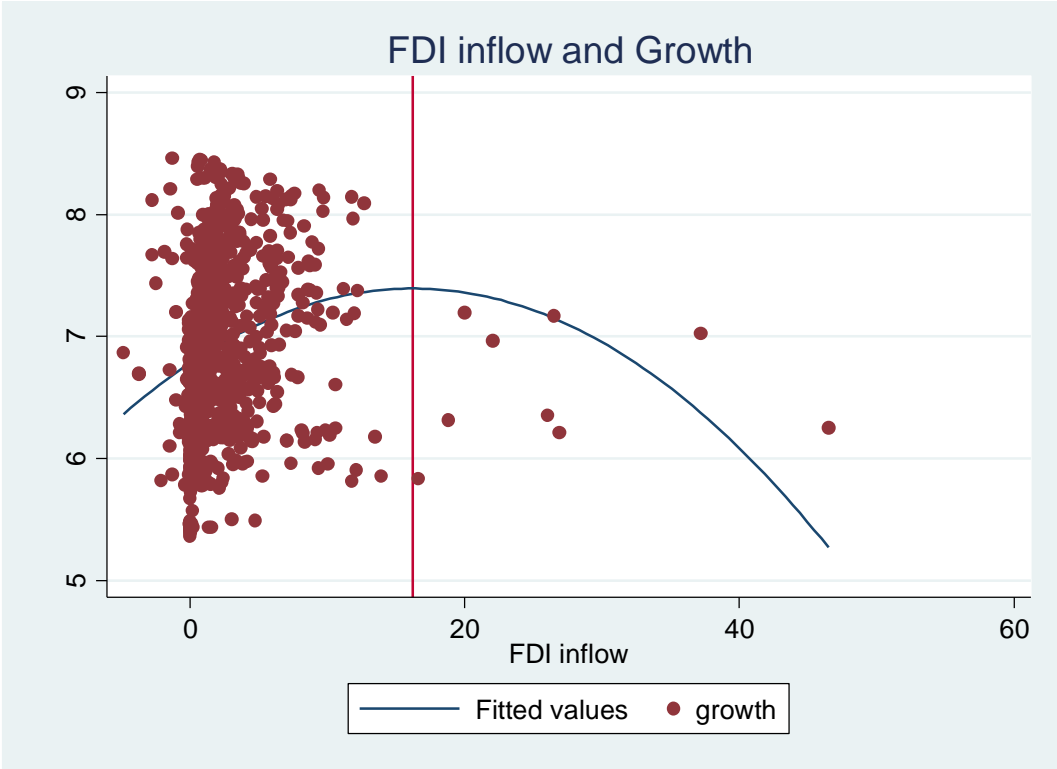
Table 9: OLS results of Financial Integration and Economic Growth

All countries	w/o control	w. control	with FD	with FI	with FM
VARIABLES	growth	growth	growth	growth	growth
FDII	0.0764*** (0.0107)	0.0356*** (0.0108)	0.0423*** (0.0088)	0.0325*** (0.0091)	0.0445*** (0.0095)
FDI_sq	-0.0023*** (0.0004)	-0.0017*** (0.0004)	-0.0016*** (0.0003)	-0.0012*** (0.0003)	-0.0018*** (0.0003)
trade openness		0.0101*** (0.0010)	0.0097*** (0.0008)	0.0063*** (0.0008)	0.0114*** (0.0008)
inflation		-0.0009 (0.0016)	0.0027** (0.0013)	0.0039*** (0.0014)	0.0008 (0.0014)
FD			3.8563*** (0.1834)		
FI				4.6028*** (0.2455)	
FM					2.1240*** (0.1317)
Constant	6.7409*** (0.0302)	6.2369*** (0.0606)	5.5788*** (0.0584)	5.3481*** (0.0697)	5.9373*** (0.0563)
Turning point	16.4437	10.5492	13.4496	14.0082	12.303
Observations	868	868	868	868	868
R-squared	0.0556	0.1677	0.4498	0.4087	0.3605
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Here we can see what we expected, the relationship between FDI inflow and real per capita GDP growth is parabolic shaped. In all cases, the results are significant statistic and the coefficient of the level of financial integration is around 0.07 but decrease significantly with the addition of control variables. The coefficient on the quadratic term are all negative and swing between -0.0012 to -0.002 meaning that the investment from external resources has pure positive effect on economic growth for those countries with the ratio of FDI inflow to GDP below 16.44%. Otherwise the inducing effect of increasing inflow foreign investment no longer exist. When adding control variables, the turning point decrease by a half and plummet to only around 10.54% of GDP. When taking financial development into consideration, we can see that the level of development does increase the impact of FDI inflows on growth compared to the case with only control variables. However, the role of financial institutions development

and financial markets development varies. To be specific, higher score in level of financial institutions induce the growth but the impact of FDI on growth reduces slightly compared to the model using financial sector development. The other way around occurs for financial market development. Trade openness also has significant positive relation with growth while the impact of inflation on growth is only meaningful in models with financial sector development and financial institutions development index.

Figure 11: The two-way scatter plot is drawn again with the turning point



6.2 Low income vs Emerging Countries:

The results for low income countries are in line with the findings for the all developing countries observed in this study even though that the pure effect of FDI without country-specific characteristics is a little higher than in studies with both low income countries and emerging countries. The threshold ratio of inflows of FDI to GDP for poor countries is 18.84% without control variables and financial development and decrease to around 12.84% to 13.62% when those variables are added. This implies that with the level of financial sector development and characteristics of low income countries, the investment financed by external resources should be kept below 13% of the GDP so that the countries might benefit from these investments.

Table 10: OLS results of Financial Integration & Economic Growth of Low Income countries

Low Income	w/o control	w. control	with FD	with FI	with FM
VARIABLES	growth	growth	growth	growth	growth
FDII	0.0816*** (0.0096)	0.0370*** (0.0094)	0.0368*** (0.0091)	0.0336*** (0.0091)	0.0390*** (0.0094)
FDI_sq	-0.0022*** (0.0003)	-0.0015*** (0.0003)	-0.0013*** (0.0003)	-0.0012*** (0.0003)	-0.0015*** (0.0003)
trade		0.0110*** (0.0009)	0.0096*** (0.0009)	0.0093*** (0.0009)	0.0110*** (0.0009)
inflation		0.0016 (0.0014)	0.0030** (0.0013)	0.0028** (0.0013)	0.0019 (0.0014)
fd			3.5085*** (0.5138)		
fi				2.1947*** (0.3237)	
fm					1.2689** (0.5283)
Constant	6.4674*** (0.0288)	5.8882*** (0.0565)	5.5451*** (0.0741)	5.5281*** (0.0761)	5.8540*** (0.0580)
turning point	18.8454	12.5835	13.6285	13.5219	12.8445
Observations	616	616	616	616	616
R-squared	0.1066	0.2818	0.3329	0.3322	0.2886
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

For the case of emerging countries, the first typical differences compared to the low income countries is that the level of impact of FDI inflows on growth are much higher than that in low income countries (almost as twice as much, in fact). Another point should be noticed is the threshold for the share of FDI inflows to GDP in emerging countries are only around more than 5.49% to less than 8.1%. This implies that emerging countries with ratio of FDI inflows to GDP less than 6% will induce higher economic growth than low income countries with ratio of FDI/GDP less than 13%. Or in other words, low income countries require more capital investment from foreign countries to better the economy while the efficiency from using those resources is lower than in emerging countries.

Table 11: OLS results of Financial Integration & Economic Growth of Emerging countries

Emerging countries	w/o control	w. control	with FD	with FI	with FM
VARIABLES	growth	growth	growth	growth	growth
FDII	0.1763*** (0.0324)	0.0949*** (0.0278)	0.0966*** (0.0278)	0.0642** (0.0272)	0.0917*** (0.0272)
FDI_sq	-0.0145*** (0.0035)	-0.0078*** (0.0029)	-0.0084*** (0.0029)	-0.0040 (0.0029)	-0.0083*** (0.0029)
trade openness		0.0110*** (0.0011)	0.0109*** (0.0011)	0.0092*** (0.0011)	0.0103*** (0.0011)
inflation		-0.0032 (0.0027)	-0.0038 (0.0027)	0.0026 (0.0028)	-0.0035 (0.0026)
fd			-0.3407 (0.2636)		
fi				1.8336*** (0.3656)	
fm					-0.4753*** (0.1427)
Constant	7.2617*** (0.0506)	6.7784*** (0.0727)	6.8835*** (0.1090)	6.3293*** (0.1133)	6.9494*** (0.0878)
turning point	6.0747	6.0458	5.7559	8.1081	5.4974
Observations	252	252	252	252	252
R-squared	0.1151	0.4041	0.4081	0.4594	0.4298
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

#### **IV. CONCLUSION:**

##### **1. Brief findings and contribution:**

The role of financial development and integration on the growth of economies has long been the favourite topic of many economists and scholars as financial system is always considered the backbone of every modern economy. The nexus between the development of financial sector and economic growth as well as the link between financial integration and economic growth are yet consensus. This thesis attempts to examine the relationship between those factors in developing countries in order to find a way to explain the different pathway to development among poor countries. In other words, this thesis tries to answer the questions of how some countries can benefit from financial system development and financial liberalization to take off while the others still stuck in poverty and instability. The findings are mostly consistent with the current and previous studies which focus on the non-linear relationship between financial market development, financial integration and economic growth. The impacts of indicators vary with the initial macroeconomic conditions of countries in this study. Regarding the relationship between financial development and economic growth, the measurements including credit to private sector by all financial institutions and by banks as percentage of GDP represent the development of financial institutions and as in most of the previous studies, these proxies show positive correlation with economic growth of developing countries and especially in low middle income countries when the lending volume from official credit markets reach to a certain threshold before the positive effects faded away. However, the financial sector development of low income countries seems to be not developed enough to help the economies of these countries to benefit from the financial system. In other words, there are not significant impact of financial intermediaries' development on economic activities in poor countries. Even though equity markets in developing countries are mostly established within the last 20 years and still at the beginning of the development process, the stock markets still play an important role in inducing economic outcome of developing countries under this study. An inverted U shape relationship between stock market capitalization and logarithm of GDP per capita confirmed the findings in previous studies on the same topic. To enrich the work, the regressions with the 3 explanatory variables are divided into before and after the global financial crisis and witnessed that the non-linear relationship between economic growth and private credit and private credit by banks stay still under the conditions of financial downturn and only the reduction of the thresholds are noticeable and can be understand as the reaction of the markets after the crisis time. The stock market, however, reacts with the crisis

differently when it improves the growth of the income before the crisis but then hindered the economy after suffering the hard time. Nonetheless, the impacts of equity market with the addition of crisis are not significant.

Also in this study, the role of financial integration on economic growth with country specific characteristics and level of financial development was examined. Within the framework of the project, FDI inflows is used as a proxy for financial integration. The findings are also in line with the previous studies and confirmed that financial integration promotes economic growth in both low income and emerging countries but the impact on the latter is higher than in poorer countries. The positive effect of financial integration in both regions are will turns to negative if the ratio of FDI inflows to GDP reach to level beyond the calculated thresholds. Financial development level also improves the impact of financial integration on economic growth.

## **2. Limitations:**

One the limitations of the thesis is the quality of the data collected. Although, the information using in this study is extracted from World Bank and IMF databank, it took a lot of time to generate a cleaned data sheet before processing. Because of limited time and ability, there may be still unexpected data deviating far from the mean statistic data that may affect to the final results.

The second limitation is that the model includes only some popular determinants used in some previous studies which may be not enough to explain the full relationship between financial market development, financial integration and economic growth in developing countries. Particularly, developing countries are mostly suffered from the low quality institutions, unstable macroeconomics conditions or policies with a lot of restrictions. However, within the limited time frame and resources, such information cannot be collected and introduced in the work. Thus, the results of the thesis may not meet the expectations of the readers.

## **3. Recommendations:**

As the study focused on low income and low-middle income countries, the conclusions do not hold true for all countries. As mentioned about the limitation in the research of national conditions (e.g., institutional quality, financial reform, and regional details), country-specific studies should be expected.

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## ANNEX 1: SUMMARY OF THEORIES ON FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

<b>Financial Market Development's impacts on Economic Growth/Development</b>						
<b>Author</b>	<b>Topic</b>	<b>Inputs</b>	<b>Methodology</b>	<b>Location</b>	<b>Duration</b>	<b>Outcome</b>
King and Levine (1993)	Finance and Growth: Schumpeter might be right	4 financial indicators: Liquid liabilities/GDP, deposit money banks' domestic assets/domestic assets of deposit money banks + central bank, credit to nonfinancial private sector/total domestic credit, credit to nonfinancial private sector/GDP.  4 growth indicators: real per capita GDP growth, growth rate of real per capita physical capital stock, growth rate of all other factors & gross national investment/output	Cross-country analysis and pooled cross country, time – series using data averaged over every 10 years.	80 countries	1960-1989	countries with better-developed financial institutions grow faster than those with less-developed financial institutions
Raymond Goldsmith (1969)	Financial Structure and Development as a Subject for International Comparative Study	Financial intermediary assets/GNP, economic growth indicators	Cross-country analysis	35 countries	Period of 100 years with data prior to 1964	Positive relationship between financial development and growth

Rousseau and Wachtel (1998)	Financial intermediation and Economic Performance: Historical from 5 Industrialized countries	Financial depth (intermediaries' assets/annual output), (intermediary assets + public corporate securities)/total financial assets, base money, ...	VAR and vector error correction models (VECMs)	5 industrialized countries (USA, UK, Canada, Norway & Sweden)	1879-1929	Rapidly growing financial systems play an important part in improving resources allocations and economic performance and this role is more important in long run.
Levine, Loayza & Beck (2000)	Financial intermediation and growth: causality and causes	Real per capital GDP growth, liquid liabilities/GDP, commercial banks' assets/assets of commercial and central banks, private sector credit/GDP,	Cross sectional instrumental variable estimator and GMM	74 countries	1960-1995	Financial development better the growth of real sectors.
Rousseau and Wachtel (2009)	What is happening to the Impact of Financial deepening on Economic Growth	M3/GDP, M3 - M1, private sector credit, real per capital GDP growth rate, log of initial real per capita GDP, log of initial secondary school enrollment rate, trade/GDP, government consumption/GDP	Cross sectional estimates and GMM dynamic panel estimation, time period fixed effects.	84 countries	1960-2004	Strong effect of financial depth level on growth and stay still through financial liberalization
Rioja and Valev (2004)	Does one size fit all?: a reexamination of the finance and growth relationship	Financial development: Private credit, liquid liabilities, commercial banks' assets/commercial + central banks' assets Control variables: initial income/capita, average	GMM dynamic panel techniques	74 countries	1960-1995	Finance does not pose positive effect on economic growth uniformly and even when the effect is positive, the level of effect also varies. The effect of financial development on growth is strong positive in middle and high region only within a certain size threshold

		years of schooling, government spending/GDP, (Import + Export)/GDP, inflation, black market premium.				and decline when the level of financial development is too high while in low countries banking sector plays the important role and has no effect or positive effect on growth. Private Credit has no significant effect on growth in low region, but significant positive in middle and high regions.
Shen and Lee (2006)	Same Financial Development yet Different Economic Growth - Why	Bank development: Private sector credit by banks/GDP, stock market development, liquid liabilities of financial intermediaries/GDP, interest rate spread; Stock market development: market capitalization/GDP, stock turnover ratio Governance and legal factors: investment, inflation, government consumption, initial schooling, logarithm of initial real GDP/capita.	OLS regression	48 countries (25 high income countries, 17 middle income countries, 6 low income countries)	1976-2001	In the linear model, economic growth is facilitated only by stock market development while banking development has no impact. With control variables, banking sector in countries with better shareholder protection and more liberated finance system does impact on economic growth. The relationship between growth and bank development is described as an inverse U-shape.
Cecchetti and Kharoubi (2012)	Reassessing the impact of finance on growth	Financial sector development: private credit/GDP, bank credit to private sector/GDP financial sector's share in	OLS and fixed effect method regression	50 advanced and emerging market economies	1980-2009	Financial sector size has a positive effect on productivity growth and switch to negative effect after the size reaches to a certain threshold.

		total employment, GDP/worker growth				Financial sector growth competes with other sector in the economy because of the shortage of resources and therefore slow down the growth of the economy. Generally speaking, more finance is not always better.
Girgin, Nguyen and Karlis (2018)	How global financial crisis affected the financial development and economic growth	GDP/capita growth, liquid liabilities of commercial banks and central banks and private credit	GMM dynamic panel techniques	147 countries	2000 - 2013	The global financial crisis in 2008 has significant impact on the nexus of financial development and economic growth. Liquid liabilities to GDP does not make positive contribution to the economic growth while banks' assets and private credit both has positive relation with growth before crisis and this positive correlation is changed into negative after the 2008 crisis.
Asteriou and Spanos (2019)	The relationship between financial development and economic growth during the recent crisis: Evidence from the EU	GDP growth, liquid liabilities (% of GDP), commercial bank assets/commercial and central banks assets, stock market capitalization to GDP, stock market turnover, inflation, FDI and trade openness.	OLS regression with Fixed effects and Random effects	26 EU countries	1990-2016	Financial development encourages growth of economy and hampers economic activities after the crisis. During the downturn, capital adequacy of banks provide protection to depositors and stimulate financial system stability.

## ANNEX 2: SUMMARY OF THEORIES ON FINANCIAL INTEGRATION AND ECONOMIC GROWTH

<b>Financial Integration's impacts on Economic Growth/Development</b>						
Author	Topic	Inputs	Methodology	Location	Duration	Outcome
Edison, Levine et al (2002)	International financial integration and economic growth	Real per capita GDP growth, IFI (IMF Restriction, Quinn measure, Stock of capital flows, flow of capital, stock of capital inflows, inflows of capital computed from FDI, Portfolio Investment and total financial claims) and control variables including initial income, initial level of schooling, government balance, inflation, law and order and corruption	Assortment of statistical methodologies (OLS, GMM)	57 international countries	1980–2000	Effects of financial integration were mixed. There is a positive relationship between initial income and level of education with economic growth. There are no significant relations between economic growth and IMF restriction measures, stock of capital flows and stock of capital inflows. IFI only promotes growth in countries that are poor sufficiently and does not have positive correlation with growth in countries with high level of financial development.
Guiso, L., T. Jappelli, et al (2004)	Financial market integration and economic growth in the EU	IFI, Financial development and real GDP	Simulation methodology, international industry-level panel	EU countries	1996–2001	EU financial integration impact is mixed
Osada and Saito (2010)	Financial integration and economic growth: An Empirical Analysis using International	Real per capita GDP growth, IFI (including FDI, equity liabilities and debt liabilities)	International panel data model	83 countries	1974–2007	FDI has positive impact on economic growth while equity and debt liabilities have reverse impact.

	Panel Data from 1974-2007					Countries with better institutions and developed financial markets benefit more from financial integration. Financial integration has positive impact on international trade volume and financial market development which in turn boost the economic growth.
Gheeraert and Mansour (2005)	On the impact of Private capital flows on Economic Growth and Development	FDI and Portfolio Investment inflows and outflows, means of GDP growth, Human Development Index	fixed effect LSDV	45 countries	1975-2001	Capital flows have positive and significant relationship with growth but unidentified link with development.
Ahmed (2011)	International financial integration, investment and economic performance	Real per capita GDP growth, IFI	Generalised Method of Moments (GMM) approach - panel data	25 SSA Countries	1976-2008	Financial integration drives growth indirectly.
Meshach (2007)	Effects of financial integration on financial development and economic performance	IFI, Financial development and real GDP	Time series, vector autoregressive and error correction model	4 SACU Countries	1970 - 2004	Effects of financial integration on growth were mixed; negative association for Botswana

Quinn, and Toyoda (2008)	Does Capital Account Liberalization Lead to Growth?	Per capita national income, trade openness, growth in population, liquidity, capital account openness (computed from capital and black market premium)	pooled time-series, cross-sectional OLS and GMM system estimation	94 countries	1955 to 2004	Equity market liberalization has impact on economic growth
Epaulard and Pommeret (2005)	Financial Integration, Growth and Volatility	Financial Integration: claims and liabilities to GDP, claims on foreign assets and liabilities to GDP	Stochastic endogenous growth model	32 developing and emerging countries	1990-1998	Gains from widening access to global markets and from increase in FDI are nearly equally and significant to growth. FDI leads to an increase in domestic productivity which can be understand as an increase of 0.5 pp of growth per year.
Kose et al (2009)	Does financial globalization promote risk sharing	Growth: Real GDP per capita, real private consumption, real public consumption; Financial Integration: IMF and BHL measures, Chinn and Ito (2006) and Edwards (2005) measures, share of stocks of external assets and liabilities to GDP (which comprise from FDI, portfolio equity and portfolio debt)	Cross-section, time series and panel regressions	69 countries including 21 industrial, 21 emerging market and 27 developing countries	1960 - 2004	The role of financial integration in risk sharing effect is limited and only industrial countries benefit from financial liberalization. FDI and Equity improve the risk sharing effect in emerging countries but the external debt stocks pose the opposite effect. The reasons for inability to reduce risk while opening financial market in emerging regions are due to the structural features of the countries or their policies and the fact that capital flows in these countries tend to be procyclical.
Yilmazkuday (2011)	Threshold in the Finance – Growth	Growth: real GDP per capita	Rolling – window two-stage least	84 countries	1965-2004	High inflation serves as a good factor for the positive effect of

	Nexus: A cross country Analysis	Explanatory variables: log of initial GDP/capita, log of initial secondary enrollment rate, liquid liabilities M3/GDP, inflation rate, trade openness, government size	squares regression			financial depth and growth in the long term. The relationship between finance and growth in poor countries is affected by small government sizes while rich countries are affected by large government sizes. The poorer a country is the higher level of trade openness it needs to boost the finance-growth nexus.
Kose et al (2003)	Financial Integration and Macroeconomic Volatility	Income: GNP Trade openness: (imports + exports)/GDP Financial openness: restriction indicators on capital account and gross capital flows/GDP Other variables: M2/GDP, inflation volatility, fiscal balance..	OLS regression	21 industrial and 55 developing countries	1960-1999	Financial openness (measured by capital flows/GDP) and volatility between consumption and income are in non-linear relationship



### ANNEX 3: COUNTRIES FOR FINANCIAL DEVELOPMENT – GROWTH NEXUS

No	Country name	Classification
1	Afghanistan	Low income
2	Angola	Lower middle income
3	Bangladesh	Lower middle income
4	Benin	Low income
5	Bhutan	Lower middle income
6	Bolivia	Lower middle income
7	Burkina Faso	Low income
8	Burundi	Low income
9	Cabo Verde	Lower middle income
10	Cambodia	Lower middle income
11	Cameroon	Lower middle income
12	Central African Republic	Low income
13	Chad	Low income
14	Comoros	Lower middle income
15	Congo, Dem. Rep.	Low income
16	Congo, Rep.	Lower middle income
17	Cote d'Ivoire	Lower middle income
18	Djibouti	Lower middle income
19	Egypt, Arab Rep.	Lower middle income
20	El Salvador	Lower middle income
21	Eritrea	Low income
22	Eswatini	Lower middle income
23	Ethiopia	Low income
24	Gambia, The	Low income
25	Ghana	Lower middle income
26	Guinea	Low income
27	Guinea-Bissau	Low income
28	Haiti	Low income
29	Honduras	Lower middle income
30	India	Lower middle income
31	Indonesia	Lower middle income
32	Kenya	Lower middle income
33	Kiribati	Lower middle income
34	Korea, Dem. People's Rep.	Low income
35	Kyrgyz Republic	Lower middle income
36	Lao PDR	Lower middle income
37	Lesotho	Lower middle income
38	Liberia	Low income
39	Madagascar	Low income
40	Malawi	Low income
41	Mali	Low income
42	Mauritania	Lower middle income
43	Micronesia, Fed. Sts.	Lower middle income
44	Moldova	Lower middle income

45	Mongolia	Lower middle income
46	Morocco	Lower middle income
47	Mozambique	Low income
48	Myanmar	Lower middle income
49	Nepal	Low income
50	Nicaragua	Lower middle income
51	Niger	Low income
52	Nigeria	Lower middle income
53	Pakistan	Lower middle income
54	Papua New Guinea	Lower middle income
55	Philippines	Lower middle income
56	Rwanda	Low income
57	Sao Tome and Principe	Lower middle income
58	Senegal	Lower middle income
59	Sierra Leone	Low income
60	Solomon Islands	Lower middle income
61	Somalia	Low income
62	South Sudan	Low income
63	Sudan	Lower middle income
64	Syrian Arab Republic	Low income
65	Tajikistan	Low income
66	Tanzania	Low income
67	Timor-Leste	Lower middle income
68	Togo	Low income
69	Tunisia	Lower middle income
70	Uganda	Low income
71	Ukraine	Lower middle income
72	Uzbekistan	Lower middle income
73	Vanuatu	Lower middle income
74	Vietnam	Lower middle income
75	West Bank and Gaza	Lower middle income
76	Yemen, Rep.	Low income
77	Zambia	Lower middle income
78	Zimbabwe	Lower middle income

**ANNEX 4: COUNTRIES FOR FINANCIAL INTEGRATION – GROWTH NEXUS**

<b>No</b>	<b>Country name</b>	<b>Classification</b>
1	Bangladesh	LOW INCOME COUNTRY
2	Bolivia	EMERGING COUNTRY
3	Burkina Faso	LOW INCOME COUNTRY
4	Burundi	LOW INCOME COUNTRY
5	Cabo Verde	LOW INCOME COUNTRY
6	Cameroon	LOW INCOME COUNTRY
7	Chad	LOW INCOME COUNTRY
8	Cote d'Ivoire	LOW INCOME COUNTRY
9	Egypt, Arab Rep.	EMERGING COUNTRY
10	Gambia, The	LOW INCOME COUNTRY
11	Ghana	LOW INCOME COUNTRY
12	Haiti	LOW INCOME COUNTRY
13	Honduras	LOW INCOME COUNTRY
14	India	EMERGING COUNTRY
15	Indonesia	EMERGING COUNTRY
16	Kenya	LOW INCOME COUNTRY
17	Madagascar	LOW INCOME COUNTRY
18	Malawi	LOW INCOME COUNTRY
19	Mali	LOW INCOME COUNTRY
20	Mauritania	LOW INCOME COUNTRY
21	Morocco	EMERGING COUNTRY
22	Nepal	LOW INCOME COUNTRY
23	Niger	LOW INCOME COUNTRY
24	Nigeria	EMERGING COUNTRY
25	Pakistan	EMERGING COUNTRY
26	Philippines	EMERGING COUNTRY
27	Senegal	LOW INCOME COUNTRY
28	Sudan	LOW INCOME COUNTRY
29	Tanzania	LOW INCOME COUNTRY
30	Togo	LOW INCOME COUNTRY
31	Tunisia	EMERGING COUNTRY