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**FINANCIAL GLOBALIZATION  
AND HOST COUNTRY EFFECT**

-- An Empirical Analysis of EU Countries

*Master thesis*

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(PhD)

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## **Declaration of Authorship**

1. I hereby declares that I compiled this thesis independently, using only the listed resources and literature.
2. I hereby declares that all the sources and literature used have been properly cited.
3. I hereby declares that the thesis has not been used to obtain a different or the same degree.
4. The thesis is 22,845 words in length, excluding Appendices.

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## Abstract

The capital insufficiency in many countries and foreign capital's capacity to enhance domestic capital and promote domestic investments stimulate countries to take measures to integrate their domestic financial markets into the global financial market. Nevertheless, the nearly devastating contagion effects of the financial crises that happened in the recent two to three decades make people come to realize the dear cost of financial globalization, in particular in the form of short-term capital mobility, and cast doubt on the policy makers' decision to open up domestic financial market.

Based on the above background, this study focuses on analyzing the effect of financial globalization on host countries' economy using the European Union (EU) countries as examples. It mainly investigates how the influence of financial globalization could vary in different types of EU countries under different time periods. The covered time span is from 1995 to 2015. Fixed effects panel estimation methodology is carried out.

The study finds that not all parts of financial globalization are beneficial to economic growth and financial globalization can become harmful. Moreover, we find that FDI inflows should be a more reliable source of foreign capital than portfolio investments. Furthermore, based on the empirical results, we conclude that core EU countries benefit more from financial globalization in normal times while periphery EU countries benefit more from financial globalization during the time of crises and negative shocks. In addition, the study strongly supports the statement that a country with well-established domestic financial system is at an advantage in financial globalization. The well-established financial system assures the country benefit more from foreign capital flows in normal times while suffer less from financial crises or external negative shocks.

Given the results of this study, policy makers should design and enact policies that are attractive to foreign investors and that encourage FDI inflows into their countries. Moreover, they should implement appropriate regulations on the mobility of short-term foreign investment inflows, which requires policy makers to create effective institutions that are able to supervise short-term capital mobility and to periodically assess the adverse impacts of short-term foreign investment inflows on their economies. More importantly, the policy decisions made by the countries should be conducive to maintain domestic macroeconomic stability, political security and efficient governance.

**Keywords:** Economic Growth, Financial Globalization, Financial Development, EU countries, Foreign Direct Investment, Portfolio Investment

## Abstrakt

Kapitálová nedostatečnost v mnoha zemích a schopnost zahraničního kapitálu posílit domácí kapitál a podporovat domácí investice stimulují země, aby přijaly opatření k integraci svých domácích finančních trhů na světový finanční trh. Nicméně téměř zničující nákazové účinky finanční krize, k nimž došlo během posledních dvou až tří desetiletí, přivádějí lidi k realizaci drahých nákladů finanční globalizace, zejména ve formě krátkodobé kapitálové mobility, a zpochybňují politiku Rozhodnout o otevření domácího finančního trhu.

Na základě výše uvedených poznatků se tato studie zaměřuje na analýzu dopadu finanční globalizace na ekonomiku hostitelských zemí pomocí zemí Evropské unie (EU) jako příkladů. Zaměřuje se hlavně na to, jak by se mohl vliv finanční globalizace lišit v různých typech zemí EU v různých časových obdobích. Pokryté časové rozpětí je od roku 1995 do roku 2015. Provádí se metodika odhadu panelů s pevnými efekty.

Studie zjistila, že vztah mezi finanční globalizací a ekonomickým růstem závisí na časových obdobích, typech zemí i na formách finanční globalizace. Navíc zjišťujeme, že příliv přímých zahraničních investic by měl být spolehlivějším zdrojem zahraničního kapitálu než portfoliové investice. Navíc na základě empirických výsledků dospějeme k závěru, že hlavní země EU mají prospěch z finanční globalizace v běžných dobách, zatímco země v okrajových zemích mají prospěch z finanční globalizace v době, kdy dochází ke krizím a negativním šokům. Studie navíc výrazně podporuje tvrzení, že země s dobře zavedeným domácím finančním systémem má výhodu během finanční globalizace. Osvědčený finanční systém zajišťuje, že země v běžných dobách těží více ze zahraničních kapitálových toků, zatímco méně trpí finančními krizemi nebo vnějšími negativními šoky.

Vzhledem k výsledkům této studie by tvůrci politik měli navrhnout a přijmout politiky, které jsou atraktivní pro zahraniční investory a které povzbuzují příliv přímých zahraničních investic do svých zemí. Kromě toho by měly zavést příslušná nařízení o mobilitě přílivu krátkodobých zahraničních investic, která vyžaduje, aby tvůrci politik vytvořili efektivní instituce schopné dohlížet na krátkodobou kapitálovou mobilitu a pravidelně hodnotit nepříznivé dopady krátkodobých přílivů zahraničních investic na jejich ekonomiky. Ještě důležitější je, aby politická rozhodnutí těchto zemí vedla k udržení domácí makroekonomické stability, politické bezpečnosti a efektivního řízení.

**Klíčová slova:** Hospodářský Růst, Finanční Globalizace, Finanční Vývoj,

**Země EU, Přímé Zahraniční Investice, Portfoliové Investice**

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## Chapter 1

### INTRODUCTION

Globalization is a process that the integration of different countries' politics, economies and socio-cultures is increasingly intensified. It indicates a closer and more frequent interaction within countries in terms of the flow of goods and services (Akindele et al., 2002). Globalization has become one of the most frequently discussed topics in recent literature. And in this study, the relationship between financial globalization and economic growth is mainly analyzed. In this section, the purpose, significance and scope of the study are presented and the research questions are specified.

#### 1.1 Purpose of the Study

The potential benefits and costs of financial globalization have been discussed in many literatures. In recent years, with the more freely flowed global capital and more integrated global financial market, more countries start to undertake economic and financial liberalizations and relax capital controls in order to cultivate an advantageous environment for more foreign investments. Such pleasing phenomenon can be regarded as a manifestation of the potential benefits that intensified financial globalization offers each countries.

There are mainly three purposes to write this work. To begin with, the study analyzes the trend of various financial globalization measures and the global distribution of these measures. Second, it investigates the relationship between financial globalization and economic growth in host countries, as well as studies whether the effect of financial globalization will be enhanced in a country with more developed financial system. Additionally, the benefits and costs of different aspects of financial globalization are discussed. Last but not least, the paper provides policy recommendations which would let countries make the most of the benefits of financial globalization while minimizing and avoiding the risks of financial globalization.

#### 1.2 Research Questions of the Study

According to neoclassical growth theory, capital will flow from rich countries to the poor ones, provided that capital can move freely around the world. This is because comparing to rich countries, poor countries have relatively lower per capita capital and thus the diminishing returns set in the marginal rate of capital in poor countries will be higher. However, such deduction has not been widely proved (Lucas, 1990; Alfaro et al., 2005) and it is more often happened that rich countries receive more global capital than poor countries. And such contradiction has been called the Lucas Paradox.

As one of the richest regions in the world, the European Union (EU) has been an important recipient of global capital inflow, with the countries in this region accounting for 50% of global FDI inflows in the early 2000s. In particular, the new EU member countries have witnessed a surge of foreign capital inflows in these years, raising by more than 70% from 2003. And Czech Republic, Hungary and Poland receive the largest chunks of these

inflows. It seems that foreign financial inflows have greatly contributed to the economic growth of EU countries.

However, foreign capital inflows could create severe macroeconomic imbalances such as moral hazards and asset bubbles (Garnaut, 1998). And if countries lack adequate institutions and supervision, economic recession and financial crises would typically follow. However, even in rich countries with well-organized institutions, moral hazards and asset bubbles can still exist and a convincing example is the subprime mortgage crisis happened in the US in 2008. Therefore, since some EU countries have more advanced domestic financial markets than other EU countries, it would be meaningful to see whether the negative impacts of financial globalization can be reduced in countries with well-established financial institutions or financial globalization can still harm their economic growth while bringing benefits. Moreover, the most recent global financial and European debt crises have negatively affected the EU countries, resulting in large amount of capital reversal in EU countries, hence the impact of financial globalization might be distorted before and after the financial crises. Based on the above discussion, it is obvious that we should discuss the relationship between economic growth and financial globalization under different time periods and different types of countries. Following such logic, the core research questions of this study are as the follow:

- What are the effects of various components of financial globalization on the economic growth before and after the financial crises since 2008?
- Are the benefits of financial globalization on host economies vary in countries with different financial development levels before and after the financial crises since 2008?

### **1.3 Limitations of the Study**

One of the most difficult problems faced during the accomplishment of the paper is the data availability and reliability. Because the data of some targeted countries are unavailable and unreliable within the range of considered time span, the study has to eliminate these countries. As a result, the original list of 28 EU countries has been reduced to 23 ones and the paper could be limited and less representative from this sense of view.

Another tough problem confronted in the study is about the measure of financial globalization. Since financial globalization is a complicated and broad idea, using only quantitative measurements of foreign capital flows is partial and other aspects, such as policy makers' decisions and policies aiming at promoting financial globalization as well as the actions and strategies of international organizations, such as OECD and IMF, should also be involved. Financial globalization is a constantly evolving process and can hardly be captured by a point estimate. In this sense, utilizing financial flows as the measure of financial globalization only portrayed a limited picture of financial globalization and its magnitude.

Although this study has some limitations, it provides a detailed and critical analysis of the relationship between economic growth and financial globalization in the EU countries, a topic which has been rarely discussed in this region, and gives some interesting insights about this phenomenon in EU region.

## **1.4 Scope of the Study**

The paper mainly studies the the impact of financial globalization on the EU countries' economic growth. The analyzed time span is from 1995 to 2015 and such time period is chosen because the new EU member countries such as Czech Republic have gotten rid of the effects exerted by the Soviet Union during this period and the financial and economic liberalizations of these countries have been intensified and improved, with more international capital flowing into new EU member countries. Also the data in this period is more available.

## **1.5 Significance of the Study**

The recent rapid economic development of emerging and transition economies has again provided strong evidence that financial globalization becomes increasingly important and crucial to all countries and it can largely promote economic growth if being guided in an appropriate way. However, financial globalization also makes the world more financially connected and any financial crisis happened in one part of the world can influence the rest of the world. Therefore, the sovereign debt crises happened in several EU countries (especially Spain, Greece, Italy, Portugal and Ireland) and subprime mortgage crisis in US can no doubt have effects on the rest EU countries. Under such context, it is no longer appropriate to analyze and determine the economic growth in a country just by looking at its own conditions, instead we should also take into account the conditions of other countries and the global markets. Put differently, "country-centric" models are no longer served as the best frameworks for the economic growth of a country, instead "global-centric" models have increasingly become the mainstream to drive and promote a country's economic development.

The study contributes to the recent most popular topic of the relationship between financial globalization and economic growth by studying such relationship in the EU countries, an area which has been limitedly talked about in the economic growth-financial globalization nexus literature.

## **1.6 Organization of the Study**

The organization of this study is sixfold. Chapter one provides introduction about the important research questions of the study. It also mentions the limitations, scope and significance of the study. Chapter 2 generalizes the recent literature on the economic growth-financial globalization nexus and on the relationship between economic growth, financial globalization and financial development. In addition, It takes a glance at the basic ideas about financial globalization, including its definition, measures and theories. Chapter 3 sets up the theoretical frameworks for the discussion of the relationship between economic growth and financial globalization. In chapter 4 the model specification, variables explanation, methodologies and hypothesis are presented. Chapter 5 mainly analyzes and interprets the empirical results. And finally, chapter 6 concludes the whole paper and gives some practical policy recommendations based on the empirical findings.

## Chapter 2

# LITERATURE REVIEW

The chapter introduces, at the first, some basic ideas about financial globalization. It presents the definition of financial globalization as well as its potential benefits and costs. Then it illustrates the determinants of financial globalization and the three major measurements of financial globalization that have been most frequently utilized by different economists. Subsequently the study summarizes various literature on the relationship between economic growth and financial globalization and on the relationship between economic growth, financial globalization and financial development. Finally, the chapter provides a brief conclusion about the questions of financial globalization which have been rarely discussed on the literature and need further consideration.

### 2.1 Definition of Financial Globalization

Financial globalization is a process that all countries' domestic financial markets become more integrated and unified. And one cannot underestimate the significance of financial globalization as numerous transactions denominated in various international currencies such as US Dollar happen every day amongst different stakeholders coming from all over the world. In most of the times, these transactions have nothing to do with actual, tangible currencies across countries. Instead, they only involved a change in the positions of various stakeholders via bank transfers and financial instruments denominated in different currencies (Rivera and Batiz&Rivera and Batiz, 1994).

Countries can benefit immensely from financial globalization, for example, they can reduce output volatility, augment national savings and minimize the negative impact brought by temporary domestic shocks through financial globalization (Sinn, 1992). Moreover, according to Obstfeld (1994), financial globalization enables countries to lower their poverty levels, promote improvements in technologies and innovation, reduce the cost of capital, realize international risk sharing and increase competition. These positive changes would cultivate conducive macroeconomic policies and institutions and encourage investments to flow to projects which are riskier and have higher expected returns, ultimately stimulating economic growth.

Although many studies about financial globalization have strongly proved the potential benefits of financial globalization, the recent several financial crises happened in emerging markets also casted light on its dearly costs (Kose et al., 2003). And the costs of financial globalization include, but not limited to, financial and economic insecurity, higher unemployment rates, speculative attacks and flow reversals, default of short-term loans, expansionary monetary policies and inflationary threat, appreciation pressure, enlarged current account gap and even worse, macroeconomic policy reliance (Calvo et al., 1996; Stiglitz, 2001). These costs may at the end lead to fragile economic fundamentals and make countries more vulnerable to contagion<sup>1</sup> effects of financial crises occurred in other countries and are often crippling and growth-retarding. Recent cases

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<sup>1</sup> Contagion is "a process by which events in one country affect the distribution of asset returns in another country even though such events have no bearing on the fundamentals of the second country. In other words, contagion is manifested in variations in asset prices caused by external events in excess of what could be attributed to changes in fundamentals." (Nazmi, 2002)

can be seen in Asia and Latin America, and the most famous ones are the Mexican Peso crisis and Asian financial crisis.

The paradox about financial globalization, potential benefits and costs coexisting, can lead to some policy makers' opposition and fear to financial globalization as they may consider it as a bad global phenomenon. Nevertheless, such consideration should be re-examined under a detailed and rigorous study. There are a number of interacted factors that determine the success of financial globalization including exchange rate regime, economic fundamental, financial institutions and governor oversights. While the impact of financial globalization on developing economies are frequently investigated on the literature, its impact on developed countries like the EU countries is seldom mentioned. Therefore, it is worthwhile analyzing how financial globalization can affect economies in these countries. The well-established financial markets of EU countries may guarantee these countries benefit from financial globalization while at the same help them avoid the potential costs.

## **2.2 Determinants of Financial Globalization**

Based on various theories, Porter (2005) classified three approaches for the determinants of financial globalization. The first approach is the market-based approach, which is derived from the fields of economics and finance. Under this approach, with the expansion of markets and the natural resistance of markets forces to controls imposed by social allocation mechanisms, increasing market forces eventually replace these controls and as a result, financial globalization come into existence. And the increasingly dominant role of market forces can be witnessed nearly everywhere in our normal life, for example, the Euromarkets is expanding, the technology innovations that allows us to create and trade in various financial instruments via fast and sophisticated networks are growing and the influence of multinational companies on every country is deepening. The center of the market-based approach is that the market system can be efficient in allocating various resources and offering advanced and efficient goods and services. This approach outlines that capital can move freely and with few restrictions and seek globally the projects which will provide the highest possible returns. And the above characteristics of the market further enhance the magnitude, depth and speed under which market forces displaces all state-controlled allocation mechanisms.

The second one is the state-centric approach. It is based on the theories related to International Relations. This approach does not attach much importance to the roles of market played in the development and functioning of financial globalization but especially emphasizes the importance of the state. In this approach, the development of financial globalization is said to be the result of the deliberate decisions made by powerful countries in the world in the process of seeking own interests. For instance, the existence of the Euromarkets is one of the strategies utilized by United Kingdom to regain its dominance in global markets. Moreover, the importance of the state to the functioning of financial globalization lies on the ability of the state to facilitate international financial transactions which heavily rely upon the state's strict enforcement of laws and regulations. And without the help of the state, international financial transactions will be unsecure, highly risky and in chaos. The rationale of the existence of state-centric approach is that economic theories often have some puzzles which can only be explained through the role of the state. Some powerful instances are the Lucas paradox (Lucas, 1990), the failure of covered interest parity (Alfaro et al., 2005), the saving-investment correlation puzzle

(Feldstein and Horioka, 1980; Coakley et al., 2004) and the home-bias puzzle (Jeske, 2001; Baele et al., 2007). Furthermore, acting as the representatives for the states at the international stage, the international institutions, such as the WTO, the World Bank and the IMF, powerfully justify the significance of the state. The main responsibilities of these institutions include the regulation and coordination of international relations and transactions and offering of temporary loans to countries where financial or economic crises break out.

The final approach is the Marxist tradition and critical approach. It is grounded on the criticism of Karl Marx to the capitalism and regards financial globalization as an evolved form of capitalism. This approach attributes the development of financial globalization to the fierce competition between powerful countries to gain dominance in the world and in the global markets and their intention to financially erode and colonize other countries. Under this approach, the nature of financial globalization is speculative, exploitative and socially wasteful. Financial globalization is believed to result in the enlarged wealth gap between the capitalist and the non-capitalist who are the main objects of exploitation and in the increased suffering of less developed countries whose resources are plundered on a large scale through the global financial networks. The multinational companies and the capitalists expand and grow through such exploitative and plundering mechanism and they set up formidable organizations that collude with strong nations such as the United States to implement international laws and policies favorable to them. The “Washington-Consensus” (Williamson, 1990) can be seen as an illustration of this approach and this term is used by anti-globalists to describe the exploitative purpose of neo-liberalism to plunder the less developed countries by manipulating the multinationals of developed countries.

Porter (2005) stressed that any single of these three approaches alone is unable to fully explain the intensification of financial globalization as there are abundant evidence of both the importance of the market and of the state in global financial investments. Besides, past and recent experiences in various countries have proved that financial globalization can lead to the inequalities and sufferings, part of them already discussed in earlier sections.

The speed-up of financial globalization in recent years can be attributed to most countries' need for foreign capital and trade. Cardoso (1997) studied the determinants of capital inflows in Brazil during the time between 1988 to 1995 and found that capital control is endogenously determined and that the government would enforce strict capital control during economic boom while relaxing control during economic recession. However, Calvo et al. (1996) argued that removing capital control is not enough to attract and retain foreign capital and that well-designed monetary and fiscal policies as well as market-oriented reforms are also crucial.

Except for domestic considerations, global considerations also play an important role in financial globalization. Policy contagion, a situation in which one country's policies have profound impacts on its neighboring countries, has been regarded as one of the most crucial global factors to explain the increased activities of financial liberalization in many countries (Eichengreen, 2001; Simmons and Elkins, 2004). And it is the increased financial liberalization activities in many countries that led to the development of financial globalization.

Alternative view to explain the development of financial globalization from political perspective lies the reason on neoliberalism advocates' wide recognition of the idea that market mechanisms are drives for economic growth. The developments of communication technologies and financial instruments make capital control hardly possible. With such idea gathering momentum and more countries adopting neoliberal policies, sticking to restrictive policies is very expensive as the cost of nonconformity is substantial (Simmons and Elkins, 2004).

In Simmons and Elkins' (2004) investigation about the diffusion of both liberalization and restrictive policies during the period between 1966 and 1996, they showed that one country's policy preferences will not be affected by the pressure from international agencies<sup>2</sup>, but it might prefer more liberal policies because of the competition for foreign capital. They also utilized religious affiliation as the proxy for cultural ties and presented that a country's policy stance heavily depends on the success and experience of other countries that share the same cultural ties.

## **2.3 Measurement of Financial Globalization**

Since financial globalization is in its nature multi-layered, it is partial and limited to use only one measurement to assess the extent to which one country is financially integrated. The lack of a comprehensive measurement for financial globalization is due to the different controls and restrictions imposed on different parts of financial markets, the different instruments of financial transactions and the different elements of financial flows. Therefore, literature and empirical researches have adopted various measures for financial globalization. Most utilized measures only reflect some parts of financial globalization and overlook other important segments of financial globalization.

There are mainly two types of measurements for financial globalization. The first type assesses the degree to which one country's controls on financial mobility are reduced and the second type adopts quantitative indicators to measure the extent of financial flows (Edison et al., 2002).

### **2.3.1 Financial Control Measurement**

#### **2.3.1.1 IMF Binary Measure**

Starting from 1967, the IMF offers data about the capital restrictions level in its Annual Report on *Exchange Arrangement and Exchange Restrictions*. The measurement is calculated yearly and based on a binary number assigned to each country according to the presence of restriction. The major shortcoming of this measurement is that it overlooks the magnitude of financial globalization (Quinn, 1997) and the effectiveness of government restrictions (Edison et al., 2002), nor does it make a difference between the restrictions imposed on the current account and on the capital account (Rodrik, 1998; Kraay, 1998). And this measurement only assesses the restrictions on residents.

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<sup>2</sup> This contradicts the "Washington Consensus" view that international institutions that include the IMF, World Bank and WTO pressurized developing countries to liberalize their economies. It also contradicts the hegemonic pressure view that the world's most powerful states influenced liberalization policies around the world.

### 2.3.1.2 Quinn Measurements

Based on the qualitative description of the various controls imposed by countries on the payments and receipts in their current and capital accounts recorded in IMF's annual report on Exchange Restrictions, Quinn (1997) put forward a new measurement for financial globalization. He derived quantitative equivalent according to the description of the various rules pertaining to the current and capital transactions of residents. This new measurement ranged between 0 to 14 with 0 representing the most restrictive policy and 14 the most liberalized policy. Specifically, controls imposed on capital account were scored on a 0 to 4 range while controls on current account were scored on a 0 to 8 range. Quinn further allocated 2 points to the adoption of the IMF's Article VIII agreement which limits a country's ability to control exchange and capital flows. Kraay (1998) also adopted this measurement in his study.

### 2.3.2 Quantitative Measurements

Quantitative measurements can be categorized into three types:

First, the ratio of gross capital flows to real GDP. Gross capital flow equals the sum of foreign direct investment (FDI), portfolio investments and cross border lending. And the correlation between gross capital flow and financial globalization is positive, increase in gross capital flow illustrating development of financial globalization. Nevertheless, as proved by Edison et al. (2002), except for financial globalization, there are some other factors, such as policy changes and economic growth itself, that can stimulate gross capital flow. Furthermore, the major component of this measurement, portfolio investments, is so volatile that 40% of such flows are reversed within a day and 90% within a week (Tobin, 2000).

Second, a country's stock of foreign assets and liabilities. Many empirical studies have utilized this measurement to indicate the extent of financial globalization (Edison et al., 2002; Lane and Milesi, 2002). And this measurement is better than the above one as the concern for short-term fluctuations is largely reduced. Changes in this measurement indicates yearly flows.

Finally, interest rate parity<sup>3</sup>. The interaction between regional or national interest rates and the decrease of interest rate differential over time across countries have been adopted as indicators for financial globalization in some works (Obstfeld and Rogoff, 1996). The law of one price assumes that identical financial assets<sup>4</sup> must be sold for the same price regardless of the markets where it is traded if capital mobility is perfect. Obstfeld (1993) showed in his work that capital mobility is not the only reason why interest rate differential reduces. Differences in foreign exchange risk premium and in exchange expectation should also be taken into account. This measurement constrained financial globalization to only a small sector of financial markets where the role of information

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<sup>3</sup> The nominal interest parity differs from the real interest parity. The uncovered interest parity states that the differential between domestic and foreign nominal rates of return on financial assets equals the expected change in the exchange rate. The real interest parity requires in addition to uncovered interest parity that relative purchasing power parity should hold. (Buch, 2004)

<sup>4</sup> Two assets are identical if they have the same characteristics such as in terms of the risks, maturity and liquidity.

costs is underestimated and could signal the speculative activities of investors (Buch, 2004).

### 2.3.3 Saving-Investment Correlations

The correlation between domestic savings and investment is used to estimate the degree to which a country is financially globalized. This measurement is first used by Feldstein and Horioka (1980) and they investigated whether domestic investment is chiefly determined by domestic savings. In a highly financially globalized world, the correlation between these two variables would be very weak or even not exist. The more handicaps set for capital mobility, the stronger the relationship between domestic savings and domestic investment. Feldstein and Horioka created the following model and ran regression for 16 OECD countries over the period between 1960 to 1974:

$$\left(\frac{I}{Y}\right)_i = \alpha + \beta \left(\frac{S}{Y}\right)_i + \varepsilon_i$$

$\left(\frac{I}{Y}\right)$  stands for gross domestic investment (I) as a percentage of gross domestic production (Y) in country i;  $\left(\frac{S}{Y}\right)$  stands for gross domestic savings (S) as a percentage of gross domestic production in country i.  $\beta$  denotes the extent of financial globalization and the closer of  $\beta$  to 0 indicates a more financially globalized market as a smaller  $\beta$  suggests that domestic investment does not rely heavily on domestic savings. And their empirical results showed that the value of  $\beta$  in the 16 OECD countries is very close to 1, which implied that capital was very immobile and that the differences in the savings rates between the major developed countries is nearly the same as the differences in their investment rates.

Economists put forward that there must be a long-term relationship between savings and investment as inter-temporal budget constraint needs the current account to be balanced in the long term (Sinn, 1992; Krol, 1996; Lemmen, 1998) and that savings and investment are subject to common shock (Obstfeld and Rogoff, 1996). Krol (1996) also mentioned that international business cycle could result in strong correlation of savings and investment. Controlling the country effect<sup>5</sup> and international business cycle effect, Krol, based on the same model as Feldstein and Horioka, analyzed 21 OECD countries between 1962 to 1990 and found that when  $\beta$  has the value of 0.2, capital can flow highly freely. Jansen (2000) suspects the results of Krol as Krol included in his dataset Luxembourg which relied heavily on its international banking sector and thus had unreliable domestic data. Jansen proved his suspicion by showing that when removing Luxembourg, the value of  $\beta$  increased from 0.2 to 0.57.

Coakley et al. (2004) argued that the empirical findings of Feldstein and Horioka (1980) was grounded on a doubtful estimation technique and that capital was in fact very mobile. Their study used a different method, the Mean Group (MG) panel estimation technique, which took into consideration the non-stationarity of the data and heterogeneity of country-specific slope and intercept. They found that the value of  $\beta$  is 0.33 and is not statistically different from 0.

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<sup>5</sup> He controlled for country effects by introducing a dummy variable that is different for each country as opposed to using a size variable such as population for the country effect or a measure of the degree of openness.

## 2.4 Economic Growth, Financial Globalization and Financial Development

### 2.4.1 Economic Growth-Financial Globalization Nexus

The more significant international capital mobility and increased economic and financial liberalizations in many countries have made financial globalization the most hotly debated topic in recent years and there are more and more economists study about this phenomenon.

Lucas (1990) noticed that international financial capital does not flow from rich countries to poor countries, which violates from what the neoclassical growth theory presumes. Through adopting the neoclassical growth model, Lucas made a comparison of the United States and India and predicted that Indian marginal product of capital would be approximately 58 times more than US', which should lead to massive capital flow from US into India. He doubted the validity of the neoclassical growth framework whose underlying assumptions were remarkably different from the reality and tried to find alternative valid assumptions. And he also maintained that the disparities in economic fundamentals and in political risk are far from enough to cast light on such puzzle. Eichengreen (2001) concluded that the reasons for such puzzle are the information asymmetry in developing countries and their inability to collect and analyze financial transactions related information. He explained that international financial capital would not flow to countries where their marginal product exceeds opportunity cost. Alfaro (2007) elaborates the explanation of the puzzle. By overviewing the main stylized facts behind capital flow mobility over the last thirty years, he found that different economic fundamentals, market imperfections and more importantly, the different institutional quality across countries determine capital flows and capital flow volatility and therefore explains the puzzle why capital does not flow from rich countries to poor countries.

Prasad et al. (2003) revealed that over the past thirty years the more financially integrated countries (MFIs) witnessed more rapid economic development than the less financially integrated countries (LFIs). Furthermore, MFIs even have higher average per capita GDP than LFIs, with the growth rate of this figure almost three times higher in the MFIs than in LFIs. Quinn (1997) investigated the financial globalization-economic growth nexus over the time span from 1960 to 1989. Based on the current and capital account restrictions reported in the IMF's Annual Report, he quantified financial globalization and created a quantitative measure for it. After analyzing the impacts of financial globalization on OECD countries, he came to the conclusion that capital account liberalization significantly and positively correlated with economic growth. However, what Rodrik (1998) found contradicted with the findings of Quinn. Different from Quinn, Rodrik used the IMF binary restriction data ranging from 1975 to 1989 of about 100 countries which indicates whether or not a country has unrestricted capital control. Even adding control variables such as initial GDP per capita, initial human capital and government institutional quality into the model, there was no evidence that countries without capital controls could have higher economic growth rate than countries with such controls. Therefore, Rodrik put forward that if other determinants of economic growth were controlled, capital liberalization would not have significant impact on a country's economic performance. In order to explain the conflicts between the two studies of Quinn and Rodrik, Eichengreen (2001) compared the two studies and found that the Rodrik's study covered a shorter time period than Quinn's, adopted more general measurement of

financial globalization and had a larger sample of countries. The study of Edwards (2001) further proved the conclusions of Quinn that financial globalization can have a positive impact on economic growth.

Klein and Olivei (1991) analyzed the impact of financial globalization on financial development and on economic growth of more than 90 countries over the period between 1986 and 1995. They created a binary data for capital restrictions and estimated the proportion of years under the studied period when a country embarked on capital market liberalization. Adopting the OLS estimation method, their studies disclosed that although financial globalization can positively affect the financial development level of developed countries, there is no evidence that financial globalization has positive influence on developing countries. Furthermore, the positive effect of financial globalization on economic growth is channeled through advanced financial system in industrial economies and would be harmed by the rather poor-established financial markets in emerging markets.

The positive relationship between intensified financial globalization and accelerating economic growth have been proved in many recent studies (Ramey & Ramey, 1995; Prasad et al., 2003; Kose et al., 2003; Kose, Prasad, Rogoff & Wei, 2006b). However, Kose et al. (2006b) also argued that the extent of growth effect of financial globalization would vary in developed economies and developing economies. The major reason is that developed economies mainly acted as the net capital exporters, that is, they usually invest money to the rest of the world; while developing countries are often the net capital importers, as they are the main destinations of international capital flow. And economic crises and contagion is another reason why effect of financial globalization can be different between developed and developing countries (Garnaut, 1998; Radelet and Sachs, 2000). Developed countries, namely, the net capital exporters, usually have better ability than developing countries-the net capital importers to deal with the problems of boom-bust and capital reversals, since developed countries often have more advanced financial sector.

After studying the financial globalization in Nigeria during the time between 1970 to 2001 using FDI as the indicator, Akinlo (2004) showed in his paper that the effect of financial globalization on economic growth can be undermined or eliminated if foreign investments only have the purpose of speculation and do not flow to the host country's productive and manufacturing sectors. Akinlo utilized the Error Correction Model (ECM) and then pointed out that FDI has an insignificantly small but positive impact on the economic growth of Nigeria. He further elaborated that the impact of FDI on economic growth largely depend on the host country's initial conditions, including the human capital level and degree of absorptive capacity, and on the complementarity between domestic investment and FDI.

As suggested by some economists, financial globalization may not always be beneficial to economic development. Nazmi (2002) focused on the Latin American and studied the impact of financial globalization on the Brazilian economic performance. His research casted light on how contagion effects of economic and financial crises happened in foreign countries impeded economic growth. In particular, he maintained that the Brazilian economy had been negatively affected over the period from 1998 to 2001 by the economic crises in Argentina and Russia though Brazilian business cycle remained unchanged. Devereux and Smith suggested in their 1994 paper that financial globalization would result in a decreased level of domestic savings because of the reduced

precautionary savings level, therefore the overall savings would decrease and economic growth be hampered. Further studied by some other economists (Eichengreen, 2001; Boyd & Smith, 1992), financial globalization would lead to capital flight from less developed countries which usually have the problem of capital dearth to more developed countries which often have good institutions. As a result, the investment levels in both types of countries are suboptimal and economic growth will be reduced<sup>6</sup>. According to Johnston and Tamirisa (1998), financial globalization can adversely affect the host country's national sovereignty and prohibit the country from making independent monetary policies.

The series of financial crises occurred between 1996 to 1997 in Asia vividly illustrated the devastating impacts that financial globalization could bring to the host countries' economies. And Rodrik (1998) found out that a total amount of \$12.1 billion of foreign capital flow out from East Asia during this period. He outlined that the extent of the adverse effect of capital flight was an increasing function of a country's short-term borrowing. For example, amongst the countries influenced by the Asian financial crises, the countries which have the largest share of short-term debts to exports suffered the highest reduction in economic growth.

Rodrik (1998) pointed out that financial crises are unavoidable since they are the products of capitalism. And good institutions and prudential supervision are important under such context as they can mitigate the cost of financial globalization (Edwards, 2001). However, they are not elixir and can not help a country to perfectly avoid a crisis. The recent case of United States in 2008 implies that good institutions and supervision cannot necessarily help a country avoid financial crisis.

The literature on financial globalization-economic growth nexus reviewed in this study reveals both benefits and costs of financial globalization. Nonetheless, the above discussion does not mean that less financially integrated countries would see poorer economic performance, neither does it imply that more financially integrated countries would achieve better economic performance. Taking China and India for instance, both these two countries have witnessed fast economic development in recent years in despite of strict capital control. And we can also see Jordan and Peru as the two countries undergo economic recession although they are rather financially integrated and capital liberalized (Prasad, 2003). Instead, the above discuss emphasizes that countries which have lower economic growth are more likely to be less connected to the global finance.

#### **2.4.2 The Relationship between Economic Growth, Financial Globalization and Financial Development**

The following section will introduce the theoretical background for the relationship between financial development and financial globalization and also explains how higher financial development level can enhance the growth effect of financial globalization.

In the past several decades, there has been an increasing trend for foreign capital mobility across borders. For example, foreign capital inflows to developing countries have

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<sup>6</sup> In recent decades, capital flight has increased even in countries with capital controls. With financial globalization, we should expect to see increased capital flight from economies with weak economic fundamentals and institutions to economies with more stable and well-managed economies and with more developed institutions. The increased outflow of capital would weaken the domestic currency and may cause economic hardship even in the face of increased export earnings.

increased by more than six times, from 36 billion US dollar in 1988 to 230 billion US dollar in 1996 (World Bank, 1998). The more frequent international capital mobility can be attributed to several factors including the capital account liberalization in many developed countries and the breaking-through improvements achieved in information and communication technologies. As part of the latter trend, many countries liberalized their capital accounts and relaxed control on foreign capital with the purpose to promote growth by attracting foreign capital. It is the removal of such barriers to international capital mobility that activates the actual process of financial globalization. And at that time, mainstream economists believed that financial globalization was advantageous as it assures that capital can flow freely across borders to find the most productive investments (Obstfeld, 2008; Levine, 2005). However, the belief that financial globalization is advantageous as it allows a more efficient financial resources allocation at the globe level has become doubtful since the Asian crisis in 1998 as many Southern Asian countries which received massive foreign capitals such as Thailand were so vulnerable to sudden and radical capital flight.

Amongst the debates about financial globalization, one of the most important topics is whether free capital mobility can have a positive impact on economic growth. Advocates of financial globalization refer the growth-enhancing attributes of capital flows as an important advantage of financial globalization, but there are few works that can provide support to such statement, except for some empirical papers which find FDI positively promoting economic growth (Borensztein, 1998).

One explanation for the vague nature of financial globalization is that these analyses overlook the role played by financial development which can link economic growth and financial globalization. Studies that are pro or against a positive relationship between economic growth and financial globalization have only put their emphasis on whether financial globalization promote growth through stimulating domestic investment rate and/or through the positive spillover effects of foreign capital, such as the technology transfer. Nonetheless, in addition to these two channels, the potential impacts of financial globalization on economic growth through the channel of domestic financial system should also be taken into consideration-- a channel which has been rarely talked about in the literature. The theoretical basis of this latter channel is the extensive literature that draws on endogenous-growth theory, which confirms the importance of financial development for economic growth. As pointed out by Levine (1997), domestic financial development is important to economic growth because financial development level can influence capital accumulation. Therefore, this school of literature deduces that the extent to which capital flows promote economic growth depends on host country's financial development level. The three channels to growth discussed above-- that financial globalization contributes to growth by promoting domestic investments, by attracting foreign investments, and/or by promoting financial development-- might need domestic financial sector to intermediate foreign capital inflows. Therefore, the existing financial development level of a country, reflected by its ability to mobilize savings and facilitate financial resources allocation and risk management, could play a crucial role in determining the extent of effect of financial globalization on economic growth (Bailliu, 2000).

For example, when financial markets function well and there are no other distortions, foreign capital flows to sectors that have high rates of return and to profitable projects that might be difficult to get funds in domestic markets. For these reasons, financial globalization results in a more efficient resources allocation and faster economic growth.

However, when there are shocks to domestic financial sector, financial globalization may only lure domestic investors to take up more risks and pushing up the incidence of financial crises. Once the domestic financial system is undermined by crises, capital flows would be more volatile, in such case financial globalization will place domestic prosperity at risk. Moreover, considering the situation in which a foreign bank lends money to a domestic bank in order to invest in a project of a domestic company, the possibility that this domestic bank can precisely invest such foreign capital in a project which has higher rate of return, except for the bank's capacity to appropriately assess the project, will probably determine whether this capital inflow can finally contribute to economic growth. In consequence, financial globalization is more likely to have a positive impact on economic growth when a country has rather developed domestic financial sector and it is more likely to have negative impact when domestic financial sector is under-developed and subject to crises (Eichengreen and Leblang, 2003). Such view resonates with the explanations of recent financial crises in both emerging markets and developed countries. For instance, Goldstein (1998) attributed the Asian crisis to the incompatibility of under-developed domestic financial markets with capital account openness.

## **2.5 Conclusion**

By reviewing the recent literature on financial globalization, this study only obtains a limited understanding of the impacts of different aspects of financial globalization on host countries' economic growth. There are still many crucial questions waiting to be clarified and addressed, for example, whether financial globalization's different components have the same economic effects on countries which have different financial development levels; whether the growth effects of financial globalization will be enhanced through a more well-established financial system. In light of these, this study aims at solving these crucial questions.

## Chapter 3

# THEORETICAL FRAMEWORK

One of the most important parts of financial globalization is capital mobility and thus the relationship between economic growth and financial globalization can then be analyzed on the basis of the framework of growth theory. This chapter begins with the discussion of the three major theories about capital mobility; it then presents the neo-classical growth theory using foreign capital as a resource, and finally sets up a comprehensive and composite framework according to the theories that have been mentioned, pointing out the measures of financial globalization and of economic growth used in the study.

### 3.1 Capital Mobility Theories

#### 3.1.1 The Interest Rate Parity Theory

The interest rate parity theory attaches much importance to the interest rates differential among countries. It derives from the relationship between international capital flows across borders and different interest rates of various countries. The different interest rates in various countries create arbitrage opportunities for investors since they can benefit from foreign investments which have higher rate of returns comparing to domestic investments. Taking as instance the average interest rate of three-months treasury bills in August 1992. This figure was 3.4% in the United States, 13.26% in Sweden, 9.05% in the United Kingdom and 1623% in Brazil (Rivera-Batiz&Rivera-Batiz, 1994). It is obvious that an US investor who has investable short-term funds will take into account the difference in various countries' interest rates under the premise that there are few constraints imposed by the above four countries on capital mobility and capital can flow freely across borders. According to the nominal interest rates, Brazil seems to have the highest rate of return; but investors should also consider other factors, such as the exchange rate volatility between the US dollar and the above countries' currencies, the inflation rates differences between the above countries and the US and other country-specific risks (for example, default risk), in order to get the real returns on investments.

The underlying rationale of the interest rate parity is the law of one price which presumes that one commodity should only have a single price over all markets provided that there are no restrictions for the trade of the commodity. Interest rate parity can either be nominal or real interest rate parity. And nominal interest rate parity can be divided into covered and uncovered interest parity.

Considering a risk-free asset<sup>7</sup> such as a 60-day treasury bill which can be purchased by either domestic or international investors and has different returns "i" (the domestic interest rate) and "i\*" (the foreign interest rate), we deduce that covered interest parity (CIP) holds when:

$$\text{CIP} = f + i^* - i = 0 \quad (3.1)$$

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<sup>7</sup> Risk-free here implies devoid of idiosyncratic risk

where  $f = \frac{F-e}{e}$  = the forward premium/ discount;  $F$  = the forward exchange rate;  $e$  = the spot exchange rate

From equation 3.1, it is clear that the forward premium/ discount must be equal to the interest rate differential,  $i - i^*$ . And the existence of forward premium<sup>8</sup> requires that the forward exchange rate<sup>9</sup> is more (less) than the spot exchange rate, which indicates the future expected appreciation (depreciation) of foreign currency comparing to the domestic currency. Under covered interest parity, investors are able to prevent exchange risks embedded in international investments. If CIP is greater than 0, covered interest parity would fail and investing abroad is profitable, otherwise investing domestically is more profitable. Moreover, if capital mobility and international investments are not prohibited, as long as  $CIP \neq 0$  it is possible to get risk-free profits and the market will take advantage of such possibility until CIP equals 0 again.

Different from covered interest parity under which hedging against international investments is feasible, uncovered interest parity (UIP) includes international parity which means hedging against international investments is impossible and thus exchange rate risk is unavoidable. If not considering risk, uncovered interest parity holds when:

$$i = i^* + \dot{e} \quad (3.2)$$

$$i - i^* = \dot{e} \quad (3.3)$$

where  $\ddot{e} = (\hat{e} - e)/e$  is the expected rate of change of the exchange rate;  $\hat{e}$  is the anticipated exchange rate of change of the exchange rate.

Equation 3.2 illustrates that if investors are allowed to arbitrage in international investing, the rate of return of domestic assets,  $i$ , is equivalent to the sum of the rate of return of foreign assets and the anticipated rate of change of the exchange rates. Or in other words, interest rates differential is the expected rate of exchange rate changes (as shown in equation 3.3).

For the fulfilment of real interest parity, in addition to nominal interest parity, relative purchasing power parity (PPP) should also hold (Buch, 2004). The assumption of relative PPP is that with no restrictions for trade and zero transportation costs, the proportional change of domestic prices (domestic inflation),  $\dot{p}$ , must equal to the proportional change in foreign prices (foreign inflation),  $\dot{p}^*$ , plus the proportional change of exchange rate,  $\dot{e}$ .

Covered interest parity can be used to estimate the degree of financial globalization. The more intensified financial globalization, the closer CIP to 0. However, empirical studies about covered interest parity find that it fails to persist because of the existence of transaction costs, information costs, non-comparability of financial assets, market imperfections and governmental regulations and interventions (Rivera-Batiz & Rivera-

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<sup>8</sup> The forward premium differs from the foreign exchange risk premium which is the premium a risk-averse investor will want in excess of the forward premium when engaging in an uncovered investment. The uncovered investment adds additional risk (could be negative or positive) to the portfolio of the investor compared to a covered investment. To compensate for this additional risk, the investor requires the foreign exchange rate premium. That is,  $\dot{e} = f + R$ , where  $\dot{e}$  = the anticipated rate of change of the exchange rate,  $f$  = the forward premium, and  $R$  = the foreign exchange risk premium.

<sup>9</sup> The exchange rate is defined as the domestic currency price of the foreign currency. For instance, given two currencies, the USD (domestic currency) and the Mexican Peso (foreign currency), the foreign exchange rate between the USD and the Peso will be how many dollars will buy one Mexican Peso.

Batiz, 1994). Although domestic and foreign investments both have transaction costs and costs which rely on different market conditions, foreign investment, comparing to domestic investment, has one additional cost- foreign exchange transaction cost<sup>10</sup>. Such cost is usually substantial and results from the need to collect massive information related to foreign financial instruments and to exchange rate movements. Nevertheless, as many investors who are interested in foreign investments are large multinationals, they can reduce foreign exchange transaction cost due to scale economy.

Governmental interventions often include, but not limited to, different tax policies, controls on foreign exchange transactions and financial transactions and financial repression policies such as interest rate ceilings. And the existence of such interventions results in the deviation from covered interest parity, low market efficiency and even worse, the sub- optimal levels of financial prices.

One important precondition for interest rate parity is that financial assets being compared in different countries should be homogeneous, having the same characteristics. However, such precondition is unrealistic as financial assets in different countries can vary largely in their risks<sup>11</sup>, maturity, returns and liquidity. Therefore, it is no surprise that CIP fails. For example, during the early 1990s, most countries' interest rates were lower than the prevalent rates in Latin America and Asia and as a result, massive capital flows into these regions in order to get higher returns (Calvo et al., 1996).

### 3.1.2 Portfolio Diversification Theory

The portfolio diversification theory is first pointed out by Harry Markowitz (1952). According to Markowitz, selecting the appropriate portfolio should be based not only on the discounted return on assets but also on the overall risk-reward contribution of them to the portfolio. The reward of an asset equals investors' expected return of holding this asset while the risk equals the variance of returns of the asset. The theory is in nature a domestic asset model and extended later to explain the international capital mobility. As indicated by the name of this theory, it attaches much importance to portfolio diversification and requires the component assets to spread in various industries and have different risk-reward contribution. The Markowitz model will be discussed in detail below.

Assuming a static model where the purpose of a risk-averse investor is to invest his funds in different assets and this investor can invest in a total of N individual assets with different returns,  $R_i$  ( $i = 1$  to  $N$ ), the expected return of each asset,  $\mu_i$ , is given as:

$$\mu_i = E(R_i) \quad (3.4)$$

Each asset has different risk,  $\sigma_i$ , which equals to the variance of its return:

$$\sigma_i = E(R_i - \mu_i)^2 \quad (3.5)$$

When the risk of an asset is very high, the investor would expect the asset to also have a very high return so that the high risk can be compensated. If the investor invests all his

<sup>10</sup> Two of these costs are the ask-bid spread, which is the difference between how much a broker sells and buys a foreign exchange, and the brokerage fee. These costs are not incurred when transacting in domestic asset only.

<sup>11</sup> International investment is affected by different kinds of risk: exchange rate risk, inflation risk, political risk and default risk. A covered international investment is rid of exchange risk.

funds to a portfolio made up by three different assets with fixed and positive weights,  $X_i$ , i.e.  $\sum X_i = 1$  and  $X_i \geq 0$ , then the expected return from this portfolio is:

$$E = \sum_{i=1}^3 X_i \mu_i$$

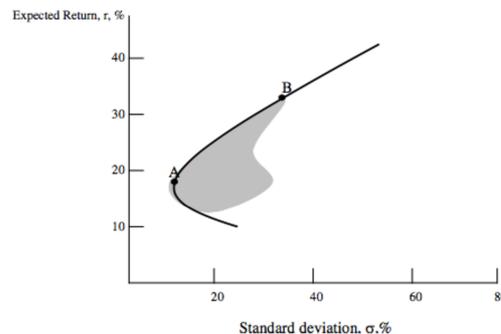
and the risk of the portfolio, measured by the variance of the portfolio, is given as:

$$V = \sum_{i=1}^3 \sum_{j=1}^3 \sigma_{ij} X_i X_j \quad (3.7)$$

If  $i = j$ ,  $\sigma_{ij}$  is the variance of a particular asset; and if  $i \neq j$ ,  $\sigma_{ij}$  is the covariance between asset  $i$  and  $j$ . Choosing from the  $N$  individual assets with different  $(E, V)$  combinations, there can be various portfolios based on different combinations of the three assets (Tobin, 1958). Markowitz (1952) put forward that the most efficient portfolio in all the possible portfolio combinations is the one which has the minimum  $V$  for a given  $E$  and maximum  $E$  for a given  $V$ .

In graph 3.1 the black parabola is the efficient frontier which contained the most efficient portfolio combinations. And the diversified portfolio of an investor should be on the efficient frontier such as on the point A, as the portfolios on the efficient frontier have the maximum expected returns for given levels of risk and have the lowest risks for given expected returns (Markowitz, 1952; Tobin, 1958).

*Graph 3. 1 Efficient Frontier*



*Source: Adapted from Brealey and Myers, (2002)*

The portfolio diversification theory challenges the Keynesian liquidity preference theory whose underlying assumptions suggest that an investor chooses to put all his money either in cash balance or in bonds up to whether the discounted return, both the coupon rate and capital gains, on bonds was positive or negative (Tobin, 1958). Tobin (2000) noticed that there is a kind of risk averters<sup>12</sup>, the diversifiers, who would place their funds in over one asset.

Under portfolio diversification theory, international capital mobility (financial globalization) is a kind of diversification strategy as investors analyzes and compares different assets in various countries according to the risk- reward (E-V) criteria. And this

<sup>12</sup> There are two types of risk averters: the diversifier places his wealth in more than one asset while the plunger places his wealth in only one kind of asset (Tobin, 2000).

theory explains more frequent international capital mobility as the result of investors' expectation for higher returns on capital and minimum risk exposures.

The validation of this theory depends on whether real portfolio choices accords to anticipated optimal mean-variance efficient portfolio taking into account factors such as countries' risk factors and asset expected returns. However, as shown in Buch' studies (2004), although investor diversify their portfolios domestically, they will not do so internationally and therefore usually scale down their portfolio choices to domestic assets. Such phenomenon is called the "Home Bias" puzzle. This so-called "Home Bias" puzzle was further proved in empirical findings of Jeske (2001) who analyzed 11 developed countries including Canada, Germany, Japan, UK and US and found that even though the proportion of each country's market to the world market was less than 48%<sup>13</sup>, the share of domestic stocks in each country's equity portfolio was over 70%. He then attributed such puzzle to asymmetric information<sup>14</sup>, tax incentives, existence of non-tradable goods and fear of repatriation.

We can use Capital Asset Price Model (CAPM) to evaluate the extent of international diversification. According to CAPM, predicted return of a financial asset,  $i$ , equals to the sum of risk-free return ( $r_f$ ) and risk premium which is the compensation to investors for the risk,  $m$ . The expected return of the financial asset can be expressed as:

$$E(r_i) = r_f + \beta[E(r_m) - r_f] \quad (3.8)$$

Where  $r_f$  is the risk-free return;  $r_m$  is the market return;  $\beta$  equals to  $\sigma_{im} / \sigma_m^2$ ;  $\sigma_{im}$  is the covariance between stock  $i$ 's return and the market return; and  $\sigma_m^2$  is the variance of the market return.

The CAPM model assumes that investors will try to diversify their portfolio to the best possible way and that financial assets and markets which have a weak correlation with the home portfolio are more attractive (Buch, 2004).

### 3.1.3 The Dual-Gap Theory

The Dual-Gap theory is first pointed out by Chenery and Strout (1966) who proved economic growth can benefit from financial flows using simple national income accounting framework. The framework emphasizes two major gaps that hinder a country's ability to fully utilize its domestic resources and to promote its economic growth. The investment-savings gap occurs when domestic savings cannot meet the needs of investment and the import-export gap occurs when the volume of import is greater than the volume of export. Chenery and Strout showed that the two gaps can occur simultaneously and that the bigger one becomes the major handicap for upward economic performance and determines the amount of foreign resources needed by the country.

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<sup>13</sup> Of the 11 countries, 10 countries world market share of domestic market was less than 25%. Only the USA had a world market share of about 48%. A well internationally diversified portfolio will require that each country's portfolio be composed of each country's shares in world market capitalization (Jeske, 2001). This criterion is based solely on weights based on country's share in world market capitalization and not taking into consideration idiosyncratic risks and returns.

<sup>14</sup> That investors face lower costs when gathering information about domestic asset than compared to foreign assets. Jeske (2001) however noted that information asymmetry is not enough to justify the observed home bias.

This theory lies on the underlying assumption that domestic resources cannot substitute foreign resources in the short-term and vice versa and illustrates how foreign resources function in the augment of domestic resources and further in the acceleration of economic growth. This theory outlines the important role of foreign resources played in economic performance and explains how foreign resources, by efficiently allocating productive resources, accelerate economic growth and ensure sustainable growth. And it also stresses the needs to import some resources that are insufficient in one country but essential to its economic development. For example, there are many developing countries which are endowed with redundant natural resources but have huge foreign debts.

The dual-gap theory can be simply deduced from the simple national income accounting of an open economy. Assuming there is a balanced budget and foreigners have zero transfer payments, equation 3.9 and 3.10 show respectively the measurement of gross national output based either on expenditures on output or on the uses of income.

$$Y = C + I + X - M \quad (3.9)$$

$$Y = C + S \quad (3.10)$$

where Y equals the gross domestic output, C equals domestic consumption, I equals domestic investment, S equals domestic savings, X equals export and M equals import.

Based on the above two equations, it is easy to get equation 3.11 and 3.12. Equation 3.11 illustrates the investment-savings gap and suggests that when domestic savings cannot satisfy the domestic investments, foreign resources fill the gap. Equation 3.12 represents the import-export gap and indicates that when the imports of a country exceed its exports, only financial borrowing can fill the gap.

$$I - S = F \quad (3.11)$$

$$M - X = F \quad (3.12)$$

Although the two gaps can happen concurrently (Chenery and Strout, 1996; Ghatak, 1995), they will not be aggregative as only the bigger gap determines the level of foreign resources inflow. Specifically, if the I-S gap is greater than the M-X gap, the I-S gap will then determine the amount of foreign resources inflow needed and the level of foreign resources inflow needed can usually measured by solving the set of equations including 3.9, 3.10 and 3.11 and the following four structural equations:

$$Y_t = Y_0 * (1+g)^t \quad (3.13)$$

$$I_t = K_g * Y_t \quad (3.14)$$

$$S_t = s_0 + s_1 Y_t \quad (3.15)$$

$$X_t = X_0 * (1+X)^t \quad (3.16)$$

Where  $Y_0$  is initial GDP,  $g$  is the target growth rate,  $k$  is the incremental capital- output ratio,  $s_1$  is the marginal propensity to save,  $x$  is the growth rate of exports,  $X_0$  is export in year 0,  $s_0$  is autonomous savings and  $t$  is time.

And if import-export gap is the main hinder on economic growth, equation 3.15 can be replaced by the import equation 3.17. Where  $m_1$  is the marginal necessity to import and  $m_0$  is the autonomous import. Therefore, the level of foreign resources inflow needed can be given as equation 3.18.

$$M_t = m_0 + m_1 Y_t \quad (3.17)$$

$$F_t = m_0 + m_1 Y_t - X_t \quad (3.18)$$

Otherwise, if investment- savings gap is the dominant gap, then the level of foreign resources inflow needed is given as:

$$F_t = (K_g - S_t)Y_t - s_0 \quad (3.19)$$

This theory not only casts light on the significance of both domestic and foreign investments in the economic growth, but also emphasizes the productive efficiency of import and foreign exchange (Thirlwall, 2003).

### 3.2 The Neoclassical Growth Theory

Different from developed countries which concern about retaining stable and steady economic growth, developing countries are passionate about accelerating their growth and catch up developed countries as soon as possible. However, as anticipated by the neoclassical growth model, the growth rates of various countries will see a convergence in the long run (Romer, 1996). Put differently, developing countries will grow faster than developed countries (in terms of per capita income) so that their economic growth will converge over time. In the formulation of the neoclassical growth model, the most crucial function is the neoclassical production function which is characterized by factor substitutability, constant returns to scale and diminishing marginal returns to factors. In short, the production function can be expressed as  $F(K, AL)$ , where  $K$  is capital input,  $A$  is labor effectiveness and  $L$  is labor input. And if put in a more intensive way, the function can be written as:

$$y = f(k) \quad f(0) = 0, f'(k) > 0, f''(k) < 0 \quad (3.20)$$

where  $y$  is output per effective labor ( $Y/AL$ ),  $Y = F(K, AL)$ ;  $k$  is capital per effective labor ( $K/AL$ ). A famous application of such production function is the Cobb- Douglas function which has been extensively adopted in empirical studies.

Some other assumptions of the growth model include single produced good, non-existence of government and fixed and exogenously determined savings rate, technological growth and depreciation. Labor and labor effectiveness increase at a fixed rate of  $n$  and  $g$  respectively, that is:

$$\dot{L}(t)/L(t) = n, \text{ and } [\dot{A}(t)/A(t)] = g^{15} \quad (3.21)$$

Assuming the economy is at an initial equilibrium where aggregate demand is the same as aggregate supply, investment therefore equals to savings. And since savings has a fixed share in output, we can get:

$$I = S = sY(t) \quad (3.22)$$

Where  $s$  is the proportion of savings in output. The model also predicts that capital stock,  $K$ , depreciates at a constant rate,  $\delta$  and increases through investment,  $I$ , thus :

$$\dot{K}(t) = sY(t) - \delta K(t) \quad (3.23)$$

According to the neoclassical growth model, with economic growth, both inputs and outputs grow over time; however, in order to keep equilibrium growth,  $I$  and  $S$  should grow at the same pace. We can find such dynamics based on equation 3.20 and because labor and labor effectiveness increase at a fixed rate, the growth of capital dominates the dynamics. We can get the growth of capital per effective labor,  $k$ , through the total differentiation of the ratio ( $K/AL$ ). Thereby,

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<sup>15</sup> A dot on a variable represents the derivative of the variable with respect to time, i.e.  $dX(t)/dt$

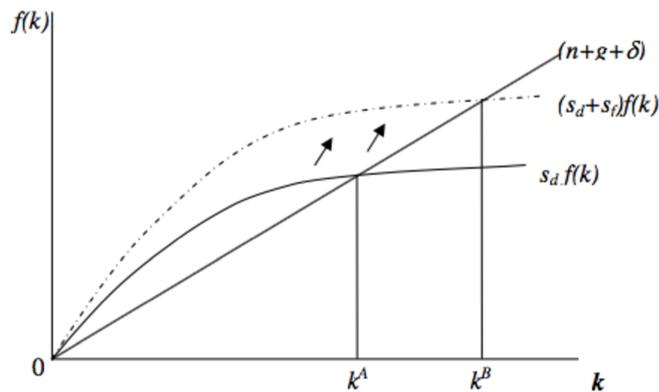
$$\dot{k}(t) = \frac{[A(t)L(t)]\dot{k}(t) - K(t)[A(t)\dot{L}(t) + L(t)\dot{A}(t)]}{[A(t)L(t)]^2} \quad (3.24)$$

Plugging equations 3.20, 3.21 and 3.23 into 3.24, we can get the equation for the growth of k:

$$\dot{k}(t) = sy - (n+g+\delta)k(t) \quad (3.25)$$

where  $sy$  is the real investment per effective labor and  $(n+g+\delta)k(t)$  is the investment needed to maintain  $k$  at its existing level. In particular,  $\delta k(t)$  is the investment needed to compensate for the depreciated part of the existing capital stock and  $(n+g)k(t)$  is the growth rate of the investment needed to ensure the capital stock can grow with the increasing effective labor. When at equilibrium,  $k$  is fixed and  $\dot{k}(t)$  equals 0, thus the actual savings level,  $sy$ , must be the same as the needed growth of investment.

Graph 3. 2 Neoclassical Growth Model with Financial Globalization



Source: Adapted from Romer, 1996

Looking at graph 3.2, since  $k^*$  ( $k^A$ ) is constant when at equilibrium, the following equation will also hold at equilibrium:

$$sf(k) = (n+g+\delta)k(t) \quad (3.26)$$

Once  $sf(k)$  is greater than  $(n+g+\delta)k(t)$ ,  $k$  must grow; otherwise,  $k$  must reduce till  $k^*$  is achieved. Therefore, neoclassical growth model put forward that at steady state, only the growth of labor effectiveness,  $g$ , is important to economic growth. According to the model, per capita income of various countries will converge.

We then discuss the effect of financial inflows under the neoclassical model. In the above discussion, we assume that only domestic savings can affect the savings rate in equation 3.22 and 3.23. But in reality, an open economy depends, to some extent, on foreign savings to fund its investments. Thus, for an open economy, the equilibrium should be that domestic investments equal to the sum of domestic and foreign savings:

$$I = S + Fr \quad (3.27)$$

Where  $Fr$  is the foreign capital or foreign savings. As long as the balance of payments deficit exists, there will be foreign savings inflow. And the national savings thus equals to domestic savings plus foreign savings and supposing that  $S_d$  is the portion of domestic savings in output and  $S_f$  is the portion of foreign savings in output, equation 3.22 can be expressed in a different way:

$$I = (S_d + S_f) Y \quad (3.28)$$

And based on equations 3.20 to 3.26, we get the equilibrium:

$$(S_d + S_f)f(k) = (n+g+\delta)k(t) \quad (3.29)$$

Because of the foreign capital inflows, the investment per effective labor function in figure 3.2 will shift to the left, locating at a higher level  $(S_d + S_f)f(k)$ . In the new equilibrium, the new equilibrium point  $k^*$ ,  $k^B$ , is higher and output per effective labor increases. Therefore, it is obvious that overall impact of foreign capital inflow on the output level is positive.

### 3.3 Setup of a Synthetic Theoretical Framework

Based on each of the three theories about capital mobility and financial integration, we can learn some channels via which foreign capital flow across borders. And admittedly, each of the theories have some important strengths. Therefore, this study tries to set up a synthetic theoretical framework by incorporating the strengths of these theories.

The interest rate parity theory and the portfolio diversification theory emphasize the importance of portfolio investment. In particular, the interest rate parity theory explains the basic reason why international capital flow across countries is to arbitrage through the interest differentials among countries, while the portfolio diversification theory points out that the rationale beneath international capital flow is the existence of different risk-reward levels of investments in different countries. Therefore, we can use the flow of net portfolio investments as an indicator for financial globalization as such indicator can capture the implications of these two theories in the proposed model.

Dual-gap theory implies that foreign capital inflows are beneficial to a country's economic growth as they can fill the gap between investment and savings and/or the gap between imports and exports. Because foreign capital inflows usually take the form as foreign direct investment (FDI) and portfolio investments and we have already utilized net portfolio investment flow to capture the impact of the above two theories, net foreign direct investment is used here to measure financial globalization.

According to the neoclassical growth theory, one country's economic growth rate will converge to its equilibrium level and its converging rate inversely relied on how far this country is from its equilibrium-level growth. Such conditional convergence suggests that controlling the determinants of the equilibrium level, developing countries, which have lower initial per capita income, will have a higher per capita income growth rate than developed countries (Barro and Sala-i-Martin, 1995). And under the empirical framework of the growth theory, per capita income growth rate is determined by two types of variables: first, initial levels of country variables such as the physical capital stock; second, control or environmental variables such as trade openness and government spending. The second type of variables, control or environmental variables, has a positive impact on the per capita growth variables in the framework. And foreign capital flows are often regarded as a kind of environmental variables.

## Chapter 4

### MODEL SPECIFICATION, HYPOTHESIS AND METHODOLOGY

In this chapter, we will show the empirical model specification, hypotheses and methodologies applied to the analysis of the relationship between economic growth and financial globalization. In section 4.1, the model used for the empirical part is developed based on Cobb-Douglas neoclassical production function. Section 4.2 and 4.3 introduce the data and EU countries utilized in the study; and in section 4.5 and 4.6, the hypotheses about the relationship between economic growth, financial globalization and financial development under sub-period and sub-country types (core and periphery EU countries) are constructed and the coefficients of financial globalization measures and control variables are anticipated. Section 4.4 describes the methodology employed in this paper—fixed panel data estimation technique.

#### 4.1 Economic Growth-Financial Globalization Model

In chapter 4, we have explored the neoclassical growth theory which provides a theoretical framework for the financial globalization-economic growth nexus. Based on the production function approach utilized in the growth analysis (Romer, 1996; Thirlwall, 2003) and extending the production function to let it include foreign capital flows as an input, a Cobb- Douglas type neoclassical production function with well- specified steady-state conditions is given as:

$$Y_t = A_t f(K_{p,t}, E_t L_t, K_f) = A_t k_{p,t}^\beta (E_t L_t)^\alpha k_f^{1-\beta-\alpha}, E_t = H_t^\gamma \quad (4.1)$$

$$\alpha > 0, \beta > 0, \alpha + \beta < 1$$

where  $Y_t$  is real output,  $K_p$  is domestic private capital,  $L_t$  is labor,  $E_t$  is human capital,  $H$  is a measurement of human capital,  $A$  is the production efficiency,  $K_f$  is foreign capital,  $t$  is the time period,  $\gamma$  is the return to human capital relative to labor and  $\alpha$  and  $\beta$  are the proportion of domestic private capital and labor respectively.

Taking logarithm of equation 4.1, we can get equation 4.2:

$$y_t = a_t + \varphi_1 k_{p,t} + \varphi_2 e_t + \varphi_3 l_t + \varphi_4 k_{f,t} \quad (4.2)$$

where  $\varphi_1 = \beta$ ,  $\varphi_2 = \gamma\alpha$ ,  $\varphi_3 = \alpha$ ,  $\varphi_4 = (1 - \beta - \alpha)$

Letters in lower case represent the corresponding log variables, and equation 4.2 denotes the logarithm form of production function where the impact of foreign capital enters. If differentiating equation 4.2 in terms of time, the dynamic production function can be yielded as the follow:

$$\dot{y}_t = \dot{a}_t + \varphi_1 \dot{k}_{p,t} + \varphi_2 \dot{e}_t + \varphi_3 \dot{l}_t + \varphi_4 \dot{k}_{f,t} \quad (4.3)$$

The dot above the variables means the growth rates of the variables. All the variables in equation 4.3 are the same as those defined in equation 4.2.

A simpler form of equation 4.3 which has been commonly used in empirical studies about the determinants of economic growth is the one adopting growth rate as a function of some macroeconomic variables (Edison et al., 2002; Bekaert et al., 2001) such as log of initial per capita income, government spending, trade volume and human capital. Thus,

based the above discussion, this study uses the following empirical model to study the growth effect of financial globalization:

$$\dot{y}_{i,t} = \phi \dot{y}_{i,t-1} + \lambda X_{i,t} + \beta \text{FINGLOB}_{i,t} + \varepsilon_{i,t} \quad (4.4)$$

where  $\dot{y}_t$  equals the growth rate of per capita real income,  $\dot{y}_{t-1}$  equals the log of initial per capita income,  $X_t$  is a matrix of exogenous variables including interaction variables,  $\text{FINGLOB}_{i,t}$  is various indicators for financial globalization defined in chapter 3,  $t$  is the time period,  $\varepsilon_{i,t}$  is the vector of error terms and  $i$  ranges from 1 to  $n$  and  $n$  is the number of countries. Given the convergence anticipation in neoclassical growth theory (Branson, 1989; Romer, 1996),  $\phi$  is expected to be negative.  $\lambda$  is the vector of coefficients and  $\beta$ , the coefficient of financial globalization indicators, is our most interested coefficient and is expected to be positive. A positive  $\beta$  would imply that the correlation between financial globalization and economic growth is positive. And a negative  $\beta$  would imply that intensified financial globalization is harmful to economic growth, which could happen under the condition that the nature of foreign capital is speculative or flows to industries that are not highly connected with the economy (Akinlo, 2004).

## 4.2 Data Definition (see Appendix 1 for details)

### 4.2.1 Financial Globalization Measures

Various measurements have been adopted by economists in empirical studies to measure financial globalization, ranging from qualitative measures such as capital restrictions and liberalization (Quinn, 1997; Bekaert et al., 2001; Edison et al., 2002; Buch and Yener, 2005) to quantitative measures such as financial inflows (Ramirez, 2000; Edison et al., 2002; Akinlo, 2004).

In this study, we utilized only quantitative measures of financial globalization. They involve:

First, the ratio of net foreign direct investment inflows to real GDP,  $\text{NFDIRGDP}$ . Net foreign direct investment (FDI) inflows equal to the value of inward direct investment made by non-resident investors in the reporting economy. And based on the criteria of IMF (IFS, 2006), equity capital, reinvested earnings, other capital and capital flows related to various inter-company transactions between affiliated companies are included in net FDI inflows, while direct investment flows for exceptional financing such as debt-for-equity swaps are not part of net FDI inflows.

Second, the share of net portfolio investment in real GDP,  $\text{NPIRGDP}$ . Net portfolio investment equals the sum of a country's portfolio investment liabilities and portfolio investment assets. Net portfolio investment involves all transactions between residents and nonresidents in financial securities of all maturities except for those securities defined as direct investment, exceptional financing and reserve assets. The financial securities classified as portfolio investment involves bonds, notes, money market instruments and corporate securities.

## 4.2.2 Economic Growth Measures

The measurement of economic growth in this study is the growth rate of real per capita GDP (GRPC). And to deal with the missing data, we use the percentage change of real per capita GDP between the relevant year and a year after as a substitution.

## 4.2.3 Control Variables

The matrix of exogenous variables and interaction terms,  $X$ , in equation 5.4 contains:

First, initial per capita real GDP in logarithm form, LGPC. The rationale of using this independent variable is to take into account the lagged effect of economic growth. The coefficient of this variables indicates the convergence rate, that is, the responsiveness of the growth rate to a proportional change in  $y_{t-1}$ .

Second, log of expected years of schooling, LGYS. We use this control variable as a proxy for human capital. According to the Human Development Report, expected years of schooling equals to the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.

Third, the level of financial development (FD). Given that equity markets in some EU countries are rather under-developed and financial markets in these EU countries are dominated by credit markets, we use the share of domestic credit to private sector in real GDP as the proxy for financial development. This proxy measures the depth and size of financial sector and has been utilized in various literature (King and Levine, 1993; Artan, 2007; Al- Malkawi et al., 2012).

Fourth, the interaction terms between the indicator for financial development (FD) and the two different financial globalization indicators (FINGLOB). Drawing on some papers which analyze whether the benefits of FDI can be enhanced in a country with a certain level of financial development (Alfaro et al., 2004; Hermes and Lensink, 2003), we employ interaction terms in this paper in order to see whether there are added advantages of financial globalization when the country is highly financially developed.

Fifth, the ratio of the total volume of exports and imports to real GDP (OPEN). This variable is used as a proxy for trade openness.

Sixth, the ratio of government final consumption expenditure to real GDP (GOV). This variable measures the impact of government spending on economic growth.

## 4.3 Data Description and Subject Countries

The original data for this study was collected from the IMF's International Financial Statistics (IFS), the World Bank Development Indicators (WDI), the UNCTAD FDI database, the IndexMundi database, the UNESCO database and the OECD database. All the data are at yearly level and also country-level. Missing observations are get from corresponding country's central bank website. And the time span for the data is between 1995 and 2015, a twenty- year period.

Due to data unavailability and data reliability (for example, Luxembourg, Cyprus and Malta have a heavy reliance on financial sector thus lead to unreliability in its domestic data; and Greece lack too much data in target time period), this study selects a total of 23 EU countries as study subjects. These countries include Austria, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom (See Appendix 2).

#### 4.4 Methodology

The main purpose of this study is to answer two questions: first, whether the impact of financial globalization on economic growth would vary before and after crises; second, whether EU countries with more advanced financial sector can see more positive effect of financial globalization than those with less advanced financial sector. In order to answer these questions more precisely and comprehensively, we divide the time span into two periods, namely, 1995-2007 and 2008-2015, to determine the impact of financial crises. We also divide EU countries into different types with the purpose to see whether results could vary within different regions. Based on the papers of Bartlett and Prica (2016) and of Lapavitsas et al. (2010), we first divide EU countries into core and periphery countries. Core countries are expected to have both higher income and financial development levels than periphery countries. Thus, core EU countries include Austria, Denmark, Finland, France, Germany, Netherlands, Sweden and United Kingdom; while periphery EU countries include Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Ireland, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia and Spain. However, there is still disparity within periphery countries: the CEE (Central and Eastern European) periphery and the Southern and Western (SW) periphery. For example, the former group of countries were not affected much by European debt crisis while the latter was heavily hit by European debt crisis. Therefore, it is necessary to study whether the relationship between financial globalization and economic growth would vary within periphery countries. CEE periphery includes Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. SW periphery includes Ireland, Italy, Portugal and Spain.

For the analysis of the relationship between economic growth, financial globalization and financial development under sub-time period and sub-country groups, this study utilized fixed panel data estimation methodology, which is widely used in economic and financial studies. The major advantage of fixed panel data estimation methodology is that such methodology controls unobserved economic determinants that are country-specific. And the rationale to use fixed effects rather than random effects is that the latter assumes that unobservable individual effects are uncorrelated with the specified independent variables— an unrealistic assumption in the context of our model. For example, unobserved factor such as improvements in the business environment can affect financial globalization.

Though there are still no consensus about the choice between fixed effects and random effects models, many economists agree that fixed effects model is better and less biased than random effects model (Griliches, 1984).

## 4.5 The Hypotheses

The investigation of hypotheses constructed in this section enables this study to give plausible conclusions about the relationship between economic growth and financial globalization. And the two different hypotheses, the null ( $H_0$ ) and the alternative ( $H_1$ ) are developed to under such context.

For the impact of financial globalization on the economic growth, we have the following three hypotheses:

Hypothesis I:

$H_0$ : The relationship between economic growth and financial globalization would be positive before crises

$H_1$ : The relationship between economic growth and financial globalization would be negative before crises

Hypothesis II:

$H_0$ : The relationship between economic growth and financial globalization would be negative during and after crises

$H_1$ : The relationship between economic growth and financial globalization would be positive during and after crises

Then, to determine whether more financially developed EU countries can benefit more from financial globalization, we set up the following two hypotheses:

Hypothesis III:

$H_0$ : Well-established domestic financial system can enhance the positive effect of financial globalization on economic growth before year 2008

$H_1$ : Well-established domestic financial system cannot enhance the positive effect of financial globalization on economic growth before year 2008

Hypothesis IV:

$H_0$ : Well-established domestic financial system cannot enhance the positive effect of financial globalization on economic growth after year 2008

$H_1$ : Well-established domestic financial system can enhance the positive effect of financial globalization on economic growth after year 2008

## 4.6 Expected Signs of the Coefficients

As explored in literature review of chapter 2 and in the composite theoretical framework in chapter 3, we know that financial globalization can have both positive and negative effects on economic growth and therefore the coefficient of financial globalization indicators (FINGLOB) in the growth model should be discussed before and after year 2008, from when a series of financial crises including American subprime mortgage crisis and European debt crisis broke out. Before year 2008, the coefficients of the two financial globalization measures are expected to be positive, which would indicate the positive effect of financial globalization on economic growth before crises. However, after year 2008, the coefficients of financial globalization measures are expected to be negative, which would suggest a negative relationship between economic growth and financial globalization during and after the financial crises.

Moreover, in terms of the coefficients of control variables. The coefficient of LGPC is expected to be negative if growth convergence holds. The coefficient of LGYS is expected to be positive as many empirical studies have proved that higher human capital

level is growth enhancing (King and Levine, 1993; Levine, 1997; Rajan and Zingales, 1998). And the coefficient of FD is expected to be positive before 2008 and negative after 2008. The coefficients of the interaction terms between FINGLOB and FD are also expected to be positive before 2008 provided that well-established domestic financial system can channel foreign capital inflows to growth-enhancing sectors; and the interaction terms are expected to be negative after 2008 as domestic financial system are largely undermined by financial crises and foreign capital outflows. And the coefficients of GOV and OPEN are both expected to be positive.

## Chapter 5

### EMPIRICAL RESULTS AND ANALYSIS

This study aims at examining the impact of financial globalization on economic growth of EU countries. The theoretical framework underpinning the economic growth-financial globalization nexus was explored in Chapter 2 and 3 and Chapter 4 introduces the established model used for empirical analysis. This chapter will lay out the empirical results and interpret these results. This chapter first provides descriptive analysis in section 5.1 and then from section 5.2 to 5.3 presents the empirical results and interpretations. In order to get a full picture of the effect of financial globalization in the EU region, this study analyze the correlation between economic growth and financial globalization under different time periods and different types of countries. Specifically, in section 5.2 we first examine the effect of financial globalization in the EU region as a bloc under different periods and then explore the effect of financial globalization in core and periphery countries before and after year 2008; in section 5.3 we mainly discuss whether more well-established domestic financial system can enhance the impact of financial globalization on economic growth.

And in terms of the empirical parts, the study uses two different measures for financial globalization: NFDIRGDP and NPIRGDP. NFDIRGDP is the share of net FDI inflows in real GDP while NPIRGDP is the ratio of net portfolio investments to real GDP. The two measures are interchanged in the estimation of the growth models.

#### 5.1 Financial Globalization and Economic Growth: Descriptive Analysis

The EU region only accounts for around 10% of the world population but remains as the major recipients of international capital flows, receiving nearly 50% of world FDI inflows every year (IMF, 2016). According to Appendix 3, in nearly every EU country, the share of FDI inflows in GDP has witnessed a rather significant increase during 1995 and 2005, especially in countries such as Ireland, Netherlands and Denmark, whose shares of FDI in GDP are over 20% in 2000. However, due to global financial crisis and European debt crisis, all EU countries have undergone quiet dramatic decline in the share of FDI in GDP since 2008. For example, the share of FDI inflows in GDP of Netherlands slumped from over 90% in 2007 to only 13% in 2010; and such figure in Hungary dropped from nearly 50% in 2007 to below 0% in 2010. And till now, most EU countries still suffer from the sequel of financial crises, as their shares of FDI inflows in GDP still saw a downward trend. During the period between 2003 and 2004, there was a slight downward of net FDI for some developed EU countries. For example, the share of FDI in GDP in Germany, Ireland and Denmark were negative in 2004. And such phenomenon is due to repatriation of intra-company loans and economic recession (WIR, 2005). According to Appendix 4, comparing to FDI flows, most EU countries have a more volatile change in portfolio investments. But similarly, all countries have experienced portfolio investments reversal during 2008 to 2010, as the share of portfolio investment in GDP of many countries turned to be negative during this period. Especially countries such as Ireland and Spain whose economies are generally foreign investment-driven witnessed the most dramatic portfolio investment reversal in this period.

To have a closer understanding about the FDI structure of the 23 EU countries, the study analyzes the FDI inflows and outflows of these countries and present the findings as the follow. It is clear that countries like United Kingdom, Finland, France and Germany are main FDI contributors in the Europe as they have the largest amount of FDI outflow comparing to other countries. Presented in Appendix 5, which shows the share of overall FDI outflows in the latest 20 years of each EU country. United Kingdom (20%), Germany (18%), France (15%), Netherlands (13%) and Spain (10%) are the top five FDI contributors, all with share of FDI outflows over 10%. Similar with the findings of FDI outflow, based on Appendix 6, the top five FDI recipients in EU region are United Kingdom (23%), Germany (13%), Netherlands (11%), France (9%) and Spain (9%). These countries have accounted for more than half of FDI inflows in the EU region.

And also to analyze and compare EU countries at a region level, we divide the 23 EU countries into two groups, namely the core EU countries and periphery EU countries. Summarized as figure 5.1 and 5.2, we can see that the time when periphery EU countries have an increase in FDI inflow overlaps with the time when core EU countries have an increase in FDI outflow, which indicates an intra-EU FDI flows from developed EU countries to less developed EU countries. In addition, from these two graphs, it is apparent that core EU countries are both the main FDI recipients and contributors in EU; while CEE periphery countries are mainly the recipient of FDI as they have very small amount of FDI outflows. Moreover, based on figure 5.1, we can see that FDI inflows in core countries had a sharper decline than in periphery countries during the crises (2008-2009). And it is also interesting to find that between 2009 and 2013, core countries witnessed an overall downward trend of FDI inflows while both types of periphery countries saw an increase in FDI inflows.

The core EU countries have increased their investments in the periphery EU countries since the EU enlargement in 2004 and as a result, just as showed in figure 5.3, the share of FDI in GDP have grown rapidly between 2004 and 2007 (a year before global financial crisis) in periphery countries. Combining figure 5.3 and 5.4, we can find that the share of FDI inflows in GDP has a very similar trend to per capita GDP growth rate. Taking the period between 2008 and 2009 as an instance, with the great decrease in the share of FDI inflows in GDP, per capita GDP growth rate also saw a significant decrease. Such relationship will be further explored in the following sections. Based on figure 5.5 which presents the average domestic credit to private sector as percent of GDP in three types of countries, we get an initial feeling that the financial development level of core and of SW periphery are higher than that of CEE periphery. And in general, the financial development level in core countries is higher than in periphery countries. How such difference in financial development level would affect the impact of financial globalization on economic growth will also be discussed in the following sections.

Figure 5. 1 Trend of FDI Inflows changes

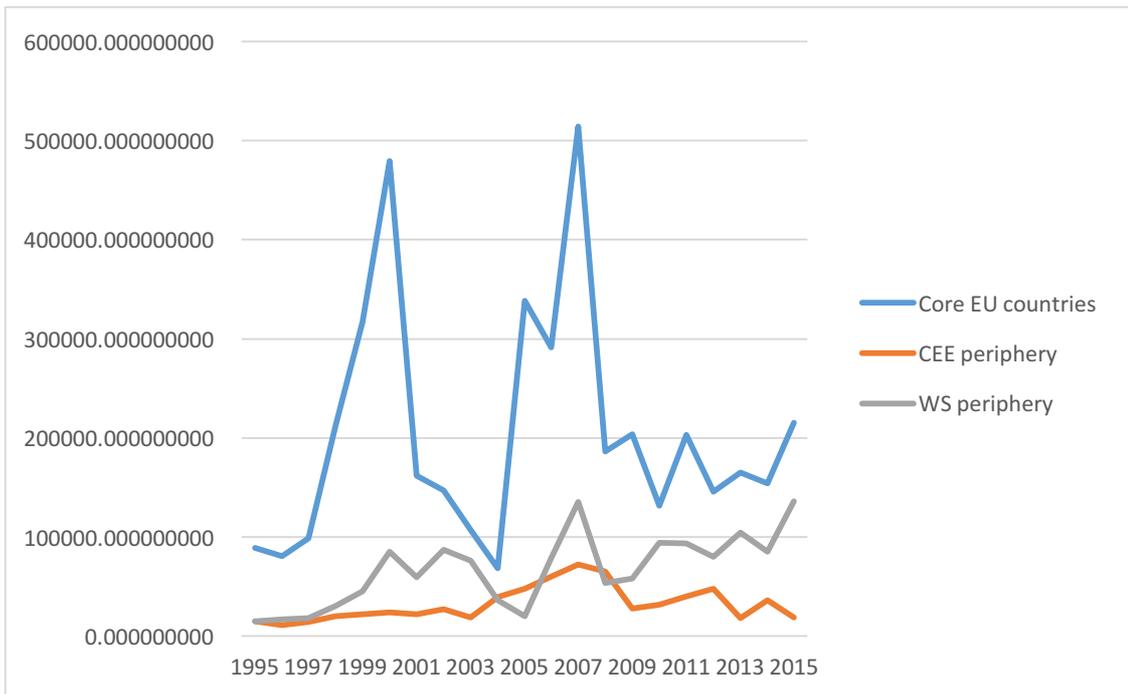
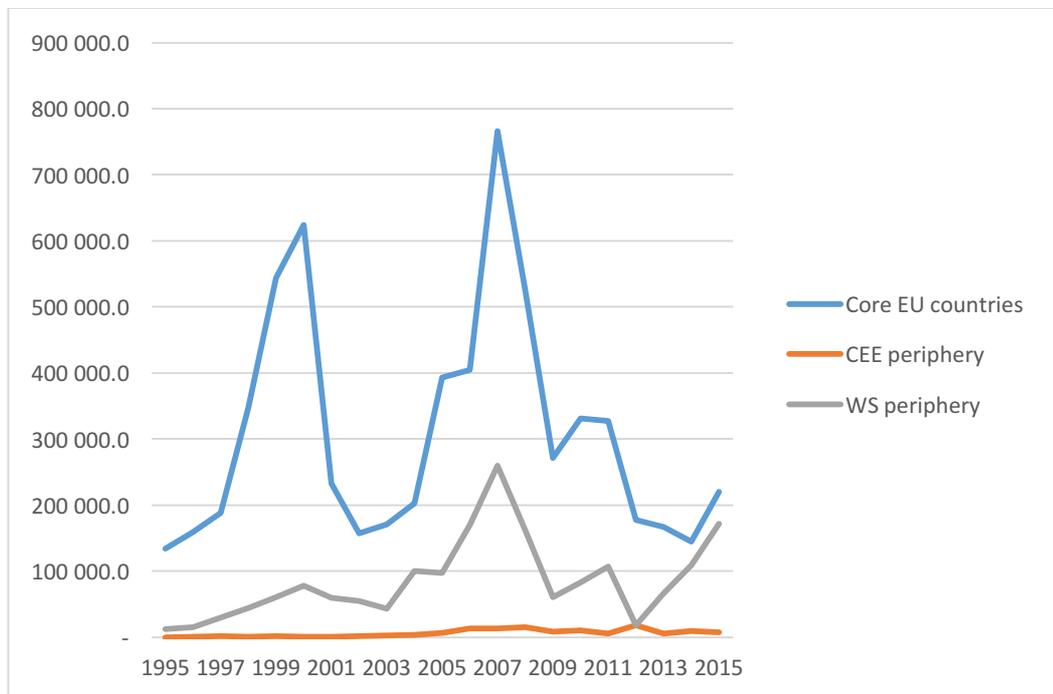
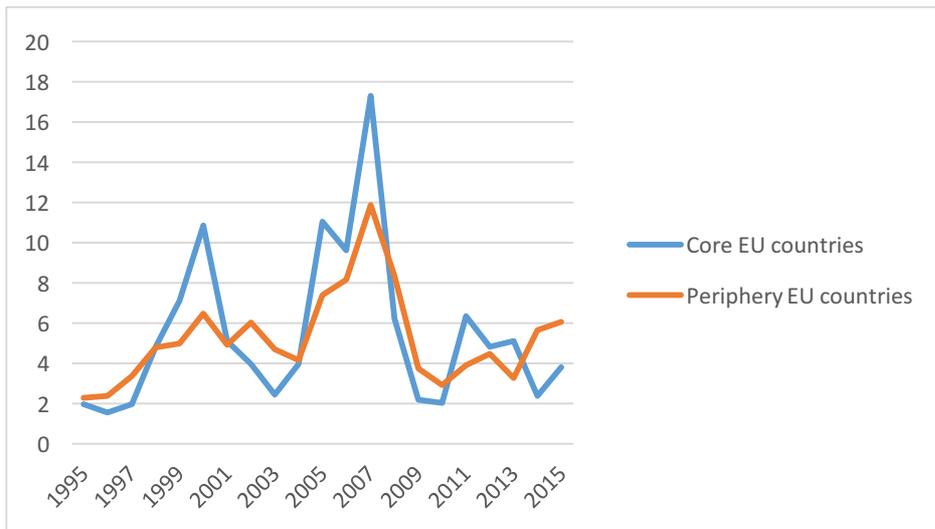


Figure 5. 2 Trend of FDI Outflows Changes



*Figure 5. 3 Average Net FDI Inflows as % of GDP*



*Figure 5. 4 Average Per Capita GDP Growth*

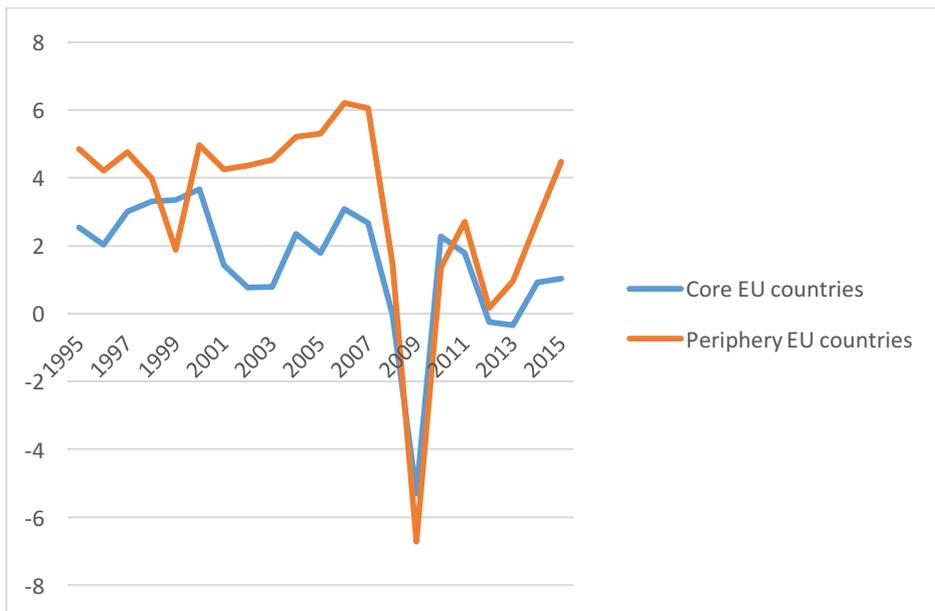
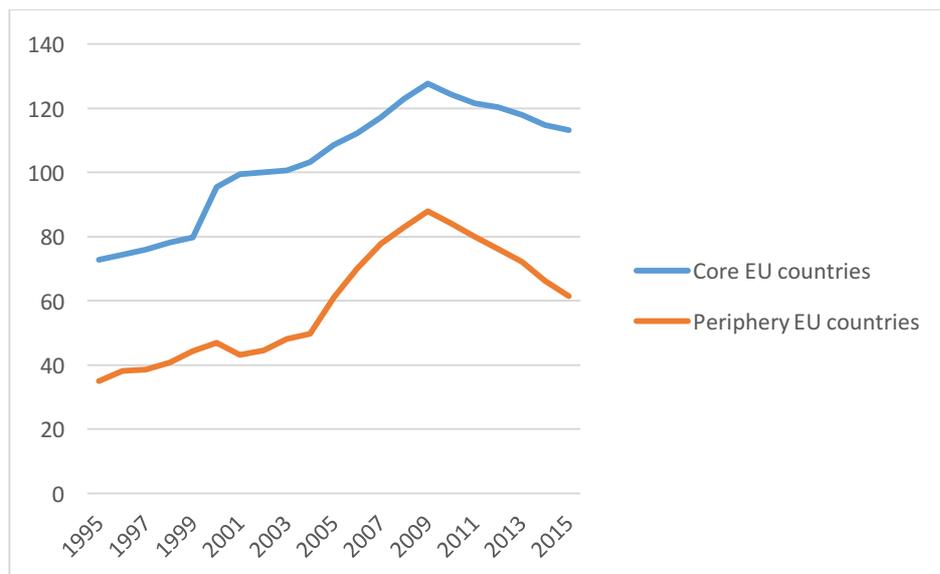
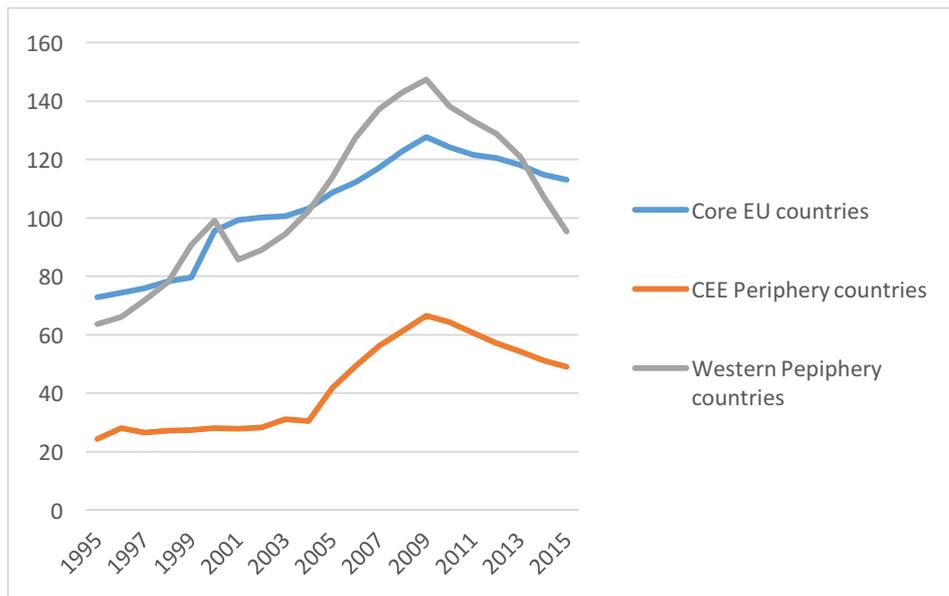


Figure 5. 5 Average Domestic Credit to Private Sector as % of GDP



## 5.2 Economic Growth-Financial Globalization Nexus

Based on the descriptive analysis in section 5.1, we expect that the relationship between economic growth and financial globalization might differ in different time periods since net FDI inflows and portfolio investments change dramatically before and after the financial crises. Moreover, such relationship might differ in different countries as core and periphery countries have quite different foreign capital flows changes. Therefore, in order to test the first two hypotheses in section 4.5, we analyze the relationship between economic growth and financial globalization under different sub-period and different sub-country group.

### 5.2.1 The Relationship in the EU Region as a Bloc

This section analyzes the impact of financial globalization on the EU region as a bloc before and after the financial crises. The estimation results using respectively NFDIRGDP and NPIRGDP as the financial globalization indicator are summarized in table 5.1. In all models the domestic financial development level is controlled.

Based on table 5.1, the coefficients of LGPC in all the models are negative, which is consistent with our expectation in section 4.6 and proves the convergence effect of economic growth within EU countries. And the coefficients of LGYS in all models are significantly positive, which accords with the expectation and indicates a positive relationship between human capital and economic growth. Trade openness is also growth-enhancing as suggested by the positive signs of coefficients of OPEN. However, the coefficients of GOV in all models, contradicting with our initial expectation, are negative. In other words, in the EU region, the correlation between government spending and economic growth is negative. This might be the case as the European debt crisis derived from the excess government spending of some EU countries.

Now we focus on the discussion of the coefficients of financial globalization indicators and the coefficients of domestic financial development proxy. Based on model III and IV, we find that the relationship between economic growth and portfolio investments is positive before the crises while being negative during and after the crises as the coefficient of NPIRGDP turns from positive (0.008) in model III to negative (-0.089) in model IV. The reason for such phenomenon might be the large amount of capital flows reversal occurred after the crises in EU region. On the contrary, the relationship between economic growth and FDI inflows is positive through the whole period between 1995 and 2015 as the coefficients of NFDIRGDP in model I and II are both positive (0.124 and 0.006 respectively), but the benefits of FDI inflows for economic growth were undermined during and after the crises since the coefficient of NFDIRGDP in model II is smaller than in model I. Furthermore, the coefficients of FD in model I and III are positive (0.010 and 0.006 respectively) while statistically negative (-0.081 and -0.080 respectively) in model II and IV, which confirms a positive relationship between economic growth and financial development in normal times and also stresses the harm a distorted domestic financial sector during financial crises can bring to economic growth. During the financial crises, domestic financial system was dysfunctional and as a result, domestic credit is not used in growth-oriented areas. For example, banks may channel credit to projects that do not provide economic benefits and consequently, do not improve growth.

Comparing the two financial globalization measures, the coefficient of NFDIRGDP are positive under different time periods, indicating that FDI can promote economic growth regardless the existence of financial crises and negative shocks. However, the coefficient of NPIRGDP to be negative in the presence of crises and shocks, which suggests that portfolio investments are more sensitive and volatile in face of crises. Therefore, it is plausible to say that FDI inflows seem to be a more reliable source of foreign capital than portfolio investments. Such finding might be explained by the different characteristics of these two types of foreign capital (Parthapratim Pal, 2003). Different from FDI, portfolio investment does not have a direct relationship with real investments. It is only reflected in the secondary market and the positive impacts of portfolio investment are only expected to be channeled through the stock market. And in many works, stock markets, under some conditions such as financial crises and negative shocks, may hinder economic

growth. This is because stock markets are usually full of opportunities for speculation and speculation results in a situation in which the investors indulge in outguessing the market and would escape from one market as soon as possible when there are negative shocks. Thus, foreign portfolio investment is usually short-time and volatile and its volatility often leads to large amount of capital reversal and thus results in stagnation of economic growth (Knill, 2004; Sula and Willet, 2006).

Based on the above findings, we confirm the null hypothesis of hypothesis I that financial globalization can positively affect economic growth before crises. However, for the hypothesis II that financial globalization negatively affects economic growth during and after crises, it only holds when the form of financial globalization is portfolio investments as FDI inflows continued to positively influence economic growth even after the crises. In summary, in normal times (no negative external shocks or financial crises existed), the relationship between economic growth and financial globalization should be positive; while under the condition that financial crises or negative shocks breaks out, the relationship between economic growth and financial globalization depends on the form of financial globalization- FDI inflows positively correlate with economic growth while portfolio investments negatively correlate with economic growth.

*Table 5. 1 Economic Growth and Financial Globalization, the EU as a Bloc*  
Dependent variable: per capita GDP growth rate

Independent Variables	NFDIRGDP as the financial globalization indicator		NPIRGDP as the financial globalization indicator	
	Before 2008 (Model I)	During and After 2008 (Model II)	Before 2008 (Model III)	During and After 2008 (Model IV)
<i>Financial Globalization</i>				
NFDIRGDP	<b>0.124</b> (1.32)	<b>0.006***</b> (3.29)		
NPIRGDP			<b>0.008</b> (1.30)	<b>-0.089***</b> (-3.23)
<i>Control Variable</i>				
LGPC	-2.964*** (-3.70)	-30.003*** (-6.41)	-3.429* (-1.70)	-30.001*** (-6.40)
LGYS	9.913*** (3.92)	8.263*** (2.94)	9.484** (2.37)	5.471*** (2.64)
FD	0.010 (1.52)	-0.081*** (-3.83)	0.006* (1.77)	-0.080*** (-3.80)
OPEN	0.044*** (5.55)	0.204*** (8.01)	0.071*** (5.02)	0.199*** (7.84)
GOV	-0.170** (-2.33)	-0.489 (-1.23)	-0.174* (-1.73)	-0.780** (-2.06)
Adjusted- R <sup>2</sup>	0.167	0.725	0.168	0.724
Durbin- Watson	2.114	2.098	2.105	1.983
F- statistics	8.26	57.96	8.28	57.76
N	276	161	276	161

Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) t statistics in parentheses

## 5.2.2 The Relationship in Core Countries and in CEE and SW Periphery

In order to test hypothesis I and II in section 4.5 and also see whether we can reach the same conclusions as section 5.2.1, the study then goes further to estimate the impact of financial globalization on economic growth at a region-level. This section will study the effect of financial globalization on economic growth in core, CEE periphery, as well SW periphery.

In table 5.2, 5.3 and 5.4, the results for the relationship between economic growth and financial globalization for the three types of EU countries under different time periods are presented. We then discuss each group of countries specifically.

For core EU countries, before the crises happening, the relationship between economic growth and financial globalization is positive because the coefficient of NDIRGDP (0.030) and the coefficient of NPIRGDP (0.010) are both positive; and core countries benefit more from FDI inflows than from portfolio investments as the coefficient of NDIRGDP is larger than that of NPIRGDP. In addition, during and after the crises, the relationship between financial globalization and economic growth ends up being negative as both the coefficient of NDIRGDP (-0.040) and of NPIRGDP (-0.031) are negative.

In contrast to core EU countries, the two groups of periphery countries have quite different results with respect to the relationship between financial globalization and economic growth. In CEE periphery, before the crises, not all parts of financial globalization are beneficial to economic growth as the coefficient of NDIRGDP (-0.057) is negative while the coefficient of NPIRGDP (0.062) is positive. This indicates a positive relationship between economic growth and portfolio investments and a negative one between economic growth and FDI inflows, manifesting that CEE periphery countries only benefit from portfolio investments. The finding that FDI negatively affects economic growth in CEE periphery before crises is very interesting since a positive relationship between economic growth and FDI has been confirmed in numerous empirical papers (Alfaro et al., 2004; Durham, 2004). This negative effect could be the case when FDI inflows crowd out domestic investment in new technology by accelerating the old, disused technology (Young, 1993). Another reason could be the preferential policies (for example, tax treatment) for foreign capital used by governments to attract FDI inflows. Such practice could lead to distortion between foreign and domestic capital (Easterly, 1993). Additionally, some CEE countries have limited ability to utilize the available opportunities and spread them throughout the local economy. For instance, problems with the transfer and application of knowledge remain widespread even in the most advanced CEE countries (Mickiewicz and Radosevic, 2002). More importantly, in CEE most of the FDI investments fall into the (privatization-related) brownfield investments which occur when transnational corporations purchase existing companies in host country. Such brownfield investments in CEE did not have high positive spillovers effects, as transnational corporations (TNC) usually purchased the best domestic companies, involved in intra-TNC trade and did not have much interaction with local environment (Mockevicius, 2014). During and after crises, CEE periphery still benefit from portfolio investments because the coefficient of NPIRGDP is 0.085. And the relationship between economic growth and FDI inflows in this region remains to be negative since the coefficient of NDIRGDP is -0.019. And because coefficients of NDIRGDP and

coefficients of NPIRGDP during the two sub-period do not change much, CEE periphery countries obviously do not affect much by the financial crises.

In addition, in SW periphery countries, influenced by the massive capital reversal during crises, the positive impact of portfolio investments on economic growth before crises (the coefficient of NPIRGDP before 2008 is 0.037) ends up being negative during and after crises (the coefficient of NPIRGDP during and after 2008 is -0.112). However, it is worthwhile noticing that the coefficient of NFDIRGDP turns to be more significantly positive after crises (0.400, significant at 1% significance level), suggesting a greater positive impact of FDI inflows on economic growth during and after the crises. It is rather surprising to find such result as this region is mostly affected by European debt crises and thus FDI should flow out. But it might be the case as SW periphery receive large amount of bailout from Troika (namely, European Commission, European Central Bank and IMF) during the period of crises. Such large amount of bailout loans, to some extent, restore international confidence and attract foreign investors. For instance, according to the data from greenfield investment monitor FDI Markets, Ireland recorded 77% more projects in 2011 than it did in 2007. Another explanation might be the policies these SW periphery countries implemented during the period of crises. Nearly all SW periphery countries speeded up their process of privatization, which opened a door to foreign investors with abundant financial sources. They also took some other expediency measures including the fast-track granting of 'golden visas' to non-EU residents who acquire properties worth a certain amount of money, stimulating massive FDI inflows even in Portugal alone over 2 billion euros were attracted from outside between 2011 and 2012. The findings for SW periphery that FDI inflows promote economic growth in the presence of negative shocks and crises and that portfolio investments switch to be growth-retarding during the crises further prove what we conclude in section 5.2.1 that FDI inflows are more reliable and less volatile than portfolio investments.

Comparing the three types of countries, before year 2008, core countries benefit more from FDI inflows than the two types of periphery countries as the coefficient of NFDIRGDP in core countries is greater than the corresponding coefficients in CEE and SW periphery countries. Moreover, CEE periphery countries benefit more from portfolio investments than core and SW periphery countries as the coefficient of NPIRGDP in CEE countries is larger than in core and SW periphery. In general, before crises, core countries benefit more from financial globalization since the coefficient of NFDIRGDP and of NPIRGDP are both positive in this region. Taking a glance at the period during and after 2008, the situation changes. When FDI inflows remain to have a positive influence on economic growth in SW periphery, FDI inflows shows to have negative influence in CEE periphery. And the relationship between portfolio investments and economic growth in SW periphery countries is heavily affected by crises as the positive relationship before crises changes to be negative when crises happened; while the relationship between portfolio investments and economic growth in CEE periphery countries is positive regardless crises. Generally, during and after crises, the two types of periphery countries benefit more from financial globalization than core countries, as the coefficient of NFDIRGDP and of NPIRGDP both become negative in core countries.

According to the above discussion, the empirical results of core countries strongly support the null hypotheses of hypotheses I and II in section 4.5, as the relationship between financial globalization in this region turns from positive before crises to negative during and after crises. However, the empirical results for periphery countries cannot provide support to the two hypotheses, as the impact of financial globalization on economic

growth in these two regions vary not only in different time periods, but also in different forms of financial globalization. For CEE periphery, the relationship between economic growth and portfolio investments is positive while the relationship between economic growth and FDI inflows is negative. For SW periphery, the relationship between economic growth and FDI inflows is positive while the relationship between economic growth and portfolio investments turn from positive before crises to negative during and after crises.

*Table 5. 2 Economic Growth and Financial Globalization, core EU countries*  
*Dependent variable: per capita GDP growth rate*

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	<b>0.030**</b>		<b>-0.040*</b>	
	(2.19)		(-1.69)	
NPIRGDP		<b>0.010</b>		<b>-0.031</b>
		(1.36)		(-1.50)
<i>Control Variable</i>				
LGPC	-8.652***	-8.778***	-6.073***	-3.972***
	(-4.00)	(-3.91)	(-5.12)	(-4.39)
LGYS	2.436	1.881	1.361	5.018*
	(1.44)	(1.33)	(1.08)	(1.67)
FD	0.006	0.005*	-0.064	-0.007
	(1.19)	(1.88)	(-1.20)	(1.44)
OPEN	0.070***	0.095***	0.172***	0.118***
	(2.64)	(3.74)	(3.19)	(3.77)
GOV	-0.311*	-0.148	-0.966	-0.309
	(-1.72)	(-0.88)	(-0.89)	(-1.34)
Adjusted- R <sup>2</sup>	0.310	0.271	0.620	0.618
Durbin- Watson	2.032	1.994	2.131	2.099
F- statistics	6.14	5.08	11.40	11.32
N	96	96	56	56

*Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) t statistics in parentheses*

*Table 5. 3 Economic Growth and Financial Globalization, CEE periphery*  
*Dependent variable: per capita GDP growth rate*

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	<b>-0.057</b>		<b>-0.019</b>	
	(-1.15)		(-1.23)	
NPIRGDP		<b>0.062</b>		<b>0.085</b>
		(1.19)		(1.20)
<i>Control Variable</i>				
LGPC	-1.463*	-0.674	-34.642***	-35.870***
	(-1.81)	(-1.44)	(-6.16)	(-6.37)
LGYS	7.565***	8.742***	2.131	2.124

	(2.57)	(3.10)	(1.60)	(1.61)
FD	0.033	0.029	-0.102***	-0.097***
	(1.55)	(1.36)	(-3.73)	(-3.58)
OPEN	0.068***	0.060***	0.192***	0.190***
	(3.30)	(3.32)	(6.06)	(6.05)
GOV	0.159	0.136	-0.558	-0.614
	(1.06)	(0.91)	(-1.06)	(-1.19)
Adjusted- R <sup>2</sup>	0.264	0.245	0.790	0.795
Durbin- Watson	2.050	1.953	2.1	2.073
F- statistics	6.89	6.71	33.79	34.88
N	132	132	70	70

Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) *t* statistics in parentheses

Table 5. 4 Economic Growth and Financial Globalization, SW periphery  
Dependent variable: per capita GDP growth rate

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	<b>0.012*</b>		<b>0.400***</b>	
	(1.93)		(4.48)	
NPIRGDP		<b>0.037*</b>		<b>-0.112***</b>
		(1.97)		(-3.14)
<i>Control Variable</i>				
LGPC	-17.429***	-16.531***	-13.399**	-5.173
	(-6.83)	(-6.43)	(-2.38)	(-0.89)
LGYS	3.857	1.732***	41.624**	14.141
	(0.86)	(1.39)	(2.04)	(0.64)
FD	0.039***	0.027**	-0.124**	-0.090
	(4.41)	(2.60)	(-2.48)	(-1.59)
OPEN	0.080***	0.083***	0.077*	0.168
	(3.34)	(3.38)	(1.43)	(0.83)
GOV	-0.790***	-0.677***	-0.072	-1.240
	(-3.88)	(-3.30)	(1.08)	(-1.09)
Adjusted- R <sup>2</sup>	0.818	0.819	0.864	0.820
Durbin- Watson	2.048	1.707	2.098	2.078
F- statistics	28.48	28.60	19.04	13.62
N	48	48	28	28

Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) *t* statistics in parentheses

### 5.3 Economic Growth, Financial Globalization and Financial Development

To test hypothesis III and IV in section 4.5, this section analyzes whether EU countries with well established domestic financial system benefit more from financial globalization.

The approach underlying this analysis is basically the same as adopted in the literature-introducing in the model a domestic financial development indicator and interaction terms between financial globalization measures and domestic financial development indicator. According to the descriptive analysis in section 5.1, we can deduce that core countries, CEE periphery countries and SW periphery countries have different financial development levels. Hence, with the purpose to understand how financial development level can influence the relationship between economic growth and financial globalization, we need to compare analyze the empirical results of these three groups of countries after introducing interaction terms.

The empirical results for core, periphery and CEE periphery are summarized in table 5.5, 5.6 and Appendix 7. Because CEE periphery countries (Appendix 7) and periphery countries have same signs for coefficients of FD and of interaction terms, the relationship between economic growth, financial globalization and financial development in these two groups of countries would be similar and hence here we only compare and analyze the results between core and periphery.

Comparing the results of core and periphery countries before crises, the coefficients of FD in core countries (0.002 and 0.005) and in periphery countries (0.001 and 0.002) are all positive, indicating a positive relationship between economic growth and financial development in normal times. However, when looking at the coefficients of interaction terms in the two types of countries, we find that the coefficients of interaction terms in core countries are both positive (0.0056 and 0.0037) and that the coefficient of FD\*NFDIRGDP in periphery countries is negative (-0.002) while the coefficient of FD\*NPIRGDP, though positive (0.0001), is rather small and insignificant. The above findings imply that there is a higher financial development level in core countries and that though financial development can contribute to economic growth in periphery countries, it has not reach the threshold above which it can support to enhance the positive impact of financial globalization. Such threshold has been proved by some empirical studies. For example, in the work of Rioja and Valev (2004), the association between financial development and FDI inflows is positive after a threshold level of financial development is reached. Moreover, the empirical results before crises strongly support the idea that advanced financial development contributes to a grater positive impact of financial globalization.

And during and after crises, the coefficients of the interaction terms for both types of countries are negative as the domestic financial system was severely distorted in the crises and even itself cannot promote economic growth, let alone provide support to financial globalization. Furthermore, comparing the coefficients of FD and of NPIRGDP in core countries and in periphery countries during and after crises, we get the conclusion that economic growth of EU countries with more developed domestic financial sector suffer less from the negative impact of crises. Since we use domestic credit to private sector as a share of GDP as the financial development measure, the above conclusion also means that the activity of credit in countries with well-developed financial system is less risky for growth than in countries with less-developed financial system.

These findings imply that in normal times, in a country with more developed financial system, the positive impact of financial globalization can be augmented and channeled through domestic financial system to economic growth; however, when there were crises or external negative shocks which would greatly distort domestic financial system, such channel for financial globalization would be blocked off, though a well-established

financial system can assure a country suffer less from financial crises or external negative shocks. We now can give answers to hypothesis III and IV- well-established domestic financial system can enhance the positive effect of financial globalization on economic growth only when crises or negative shocks do not exist.

*Table 5. 5 Economic Growth, Financial Globalization and Financial Development, core*  
*Dependent variable: per capita GDP growth rate*

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	0.09*		0.016	
	(1.27)		(1.39)	
NPIRGDP		0.006		-0.056
		(1.36)		(1.22)
<i>Control Variable</i>				
LGPC	-8.550**	-8.774**	-6.634***	-6.872***
	(-3.94)	(-3.88)	(-4.83)	(-4.90)
LGYS	1.435	1.907	1.391*	1.654*
	(1.25)	(1.33)	(1.70)	(1.65)
FD	<b>0.002</b>	<b>0.005*</b>	<b>-0.061</b>	<b>-0.060</b>
	(1.28)	(1.80)	(-1.12)	(-1.10)
FD*FINGLOB	<b>0.0056*</b>	<b>0.0037*</b>	<b>-0.002</b>	<b>-0.0002</b>
	(1.87)	(1.94)	(-1.42)	(-1.57)
OPEN	0.068**	0.095***	0.170***	0.158***
	(2.57)	(3.83)	(3.11)	(2.82)
GOV	-0.302*	-0.146*	-0.954	-1.244
	(-1.67)	(-1.71)	(-0.87)	(-1.10)
Adjusted- R <sup>2</sup>	0.317	0.271	0.622	0.618
Durbin- Watson	2.120	2.096	2.105	1.991
F- statistics	5.36	4.30	9.63	9.48
N	96	96	56	105

*Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) t statistics in parentheses*

*Table 5. 6 Economic Growth, Financial Globalization and Financial Development, periphery*

*Dependent variable: per capita GDP growth rate*

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	0.054		0.034***	
	(1.15)		(3.82)	
NPIRGDP		0.003		-0.264**
		(1.43)		(-2.95)
<i>Control Variable</i>				
LGPC	-2.916**	-2.881***	-2.611***	-2.427*

	(-2.26)	(-2.67)	(-5.12)	(-4.61)
LGYS	9.473***	9.560***	3.721***	3.447**
	(2.76)	(3.00)	(2.84)	(2.55)
FD	<b>0.001</b>	<b>0.002*</b>	<b>-0.066**</b>	<b>-0.091***</b>
	(1.53)	(1.76)	(-2.46)	(-3.77)
FD*FINGLOB	<b>-0.002*</b>	<b>0.0001</b>	<b>-0.0025*</b>	<b>-0.0015*</b>
	(-1.65)	(-1.34)	(-1.78)	(1.78)
OPEN	0.054***	0.046***	0.243***	0.216***
	(4.49)	(4.61)	(7.88)	(6.86)
GOV	-0.172	-0.158	-0.257	-0.226
	(-1.50)	(-1.41)	(-0.54)	(-0.47)
Adjusted- R <sup>2</sup>	0.181	0.159	0.788	0.778
Durbin- Watson	2.031	1.991	2.136	2.142
F- statistics			44.15	41.59
N	180	180	105	105

Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) t statistics in parentheses

## 5.4 Summary of the Findings

This chapter studies the relationship between financial globalization and economic growth and the enhance effect of developed financial system. Based on the analysis and empirical results, it is found that the relationship between economic growth and financial globalization depends on time periods, groups of countries as well as forms of financial globalization. For core countries, the relationship between economic growth and financial globalization changes from positive to negative when facing negative external shocks or financial crises. For CEE periphery, the relationship between economic growth and financial globalization depends on the forms of financial globalization. In details, the relationship between economic growth and FDI inflows is negative while the relationship between economic growth and portfolio investments is positive. For SW periphery, the relationship between economic growth and financial globalization depends not only on the forms of financial globalization, but also on the analyzed time periods. FDI inflows contributes to economic growth during the whole period while portfolio investments contribute to economic growth only before crises. Moreover, based on the experiences of the whole EU region and SW periphery countries, we find that FDI inflows should be a more reliable source of foreign capitals than portfolio investments for most countries.

According to the empirical results, we can deduce that core countries benefit more from financial globalization in normal times while periphery countries benefit more from financial globalization during the time of crises and negative shocks. Also, the results strongly support the idea that well-established domestic financial system can enhance the positive effect of financial globalization on economic growth only when crises or negative shocks do not exist.

## Chapter 6

# CONCLUSION AND POLICY RECOMMENDATIONS

### 6.1 Conclusion

This study sets up a composite framework to examine the benefits and costs of financial globalization on EU countries. Especial focus has been put on the correlation between financial globalization and economic growth of EU countries. The theoretical framework for the financial globalization-economic growth nexus relies upon the neoclassical growth theory which states that foreign capital enters directly into the production process and increases per capita capital.

Based on the descriptive analysis, the study revealed that financial globalization in EU region has been intensified in recent decades, especially in periphery EU countries as they make many financial and economic liberalization oriented policies in order to attract more foreign capital into their economies. And most foreign capital flows into the periphery countries originate from other more developed EU countries such as Germany. Core EU countries still remain both the main contributors and recipients of foreign capital flows, taking account more than half of FDI inflows as well as of FDI outflows in EU region. In general, EU still remained the most important source of FDI in the world and there is a growing trend that financial resources shift from the developed countries in EU region to the less developed ones.

Utilizing fixed panel estimation technique, the study further explores the effect of financial globalization on economic growth of the 23 EU member states during the time span from 1995 to 2015. It also discusses the problem whether more well-established domestic financial sector can enhance the positive effect of financial globalization. According to the empirical results, the study finds that not all parts of financial globalization are beneficial to economic growth and financial globalization can become harmful.

Taking the EU region as a whole, while we can find a positive correlation between economic growth and net FDI inflows both before and after financial crises, there is no evidence that net portfolio investment can have positive impact to economic growth when financial crises broke out. Considering three different groups of EU countries--core, Central Eastern European (CEE) periphery and Southern and Western European (SW) periphery, for core countries, the relationship between economic growth and financial globalization turns from positive to negative when facing negative external shocks or financial crises. For CEE periphery, the relationship between economic growth and financial globalization depends on the forms of financial globalization. In details, the relationship between economic growth and FDI inflows is negative and contradictorily, the relationship between economic growth and portfolio investments is positive. Possible explanations for the negative impact of FDI inflows in this region could be the crowd-out effect of FDI, preferential policies of the government which lead to distortion between foreign and domestic capital, limited ability of CEE countries to utilize the available opportunities and spread them throughout the local economy, and the major form of FDI inflows to CEE countries- the brownfield investments which do not create high positive

spill-over effects. For SW periphery, FDI inflows contributes to economic growth during the whole period while portfolio investments contribute to economic growth only before crises. And the positive relationship between economic growth and FDI inflows during the period of crises might be the results of the bailout of Troika which restore international confidence to this region, of the speed-up privatization and of expediency measures such as the fast-track granting of ‘golden visas’ to non-EU residents. Also, we find that core countries benefit more from financial globalization in normal times while periphery countries benefit more from financial globalization during the period of crises.

When introducing the interaction terms between financial development indicator and financial globalization measures ( $FD \cdot FINGLOB$ ) into the growth model, the study discovers that well-established domestic financial system can enhance the positive effect of financial globalization on economic growth when crises or negative shocks do not exist. Before crises, in core countries which have relatively higher financial development level, the positive impact of financial globalization can be channeled more through their developed financial system into economic growth while in periphery countries which have relatively lower financial development level, though financial development itself can contribute to economic growth, it is unable to provide support to financial globalization. Such finding indicates that there is certain threshold for financial development level and the impacts of financial globalization can be enhanced only when the country’s financial development level exceeds the threshold. Furthermore, during and after financial crises, though financial development cannot promote economic growth itself nor can it enhance the impact of financial globalization in both core and periphery countries, core EU countries suffer less than periphery countries from the negative effects.

The fact that FDI inflows are a more reliable source of foreign capital than portfolio investments confirms the need for countries to differentiate FDI from portfolio investments. Foreign portfolio investment flows triggered by investment boom can only lead to the short-run economic growth and may have reversal impact when there are negative shocks, while FDI inflows can result in the long-run growth as they can increase productivity through spillover effect (Neto et al., 2013) and act consistently even under crises. EU countries can make use of the benefits of FDI on domestic investments and increase the productivity and economic growth via technology diffusion. As FDI has more benefits over foreign portfolio investments, countries should stimulate economic growth by attracting more FDI rather than portfolio investments. These countries can maintain a high growth rate by augmenting the FDI impact on domestic investments.

For the future improvements, it might be also worthwhile to study the relationship between financial globalization and consumption volatility in EU countries. Studies on such relationship remain scanty. Nonetheless, the possibility of financial globalization smoothening consumption has been either implicitly or explicitly raised and discussed in some studies. As the world become more and more integrated, domestic macroeconomic variables are not only affected by domestic factors but also affected by international factors. With more freely mobilized foreign capital and integrated financial markets, investors are allowed to lower their exposure to risks, invest their money in foreign profitable projects and therefore have higher benefits. The possibility for international risk-sharing can decrease consumption variability relative to domestic output variability and lead to a more stable consumption path (Backus et al., 1992; Buch and Yener, 2005, Obstfeld and Rogoff, 1996).

## 6.2 Policy Recommendations

The above conclusion provides the study some policy recommendations which can be utilized to maximize the positive impact of financial globalization on economic growth:

First, since not all components of financial globalization are beneficial to economic growth and financial globalization can be harmful, it is necessary for policy makers to establish or enhance regulations related to the mobility of short-term capital flows and more prudential guidelines should be implemented so that short-term capital flows can be channeled to and matched with short and medium term uses.

Second, the fact that financial globalization can be harmful in even more financially developed countries suggests the vulnerability of domestic financial sector and therefore negative external shocks should be evaluated periodically and corresponding policies should be carried out in order to reduce the vulnerability. Such policies can take into effect through market-based incentives or temporary restrictions on short-term foreign capital flows. The fulfillment of the policies requires the establishment of domestic institutions with necessary human capital to carry out corresponding functions and ensures proper risk management in the financial sector.

Third, in order to decrease the information asymmetry which is intrinsic in financial transactions during the process of financial globalization, all countries should accelerate the reformation and development of their financial sector. With the existence of information asymmetry, risks cannot be measured precisely and market participants usually undertake excessive risks. Thus, just as suggested in many literature, it is essential to ensure transparency, accountability, good corporate governance and contract enforcements. A tax on short-term capital inflows might be a good choice as such tax can be used to fund an insurance fund which mitigates the costs associated with short-term capital flight and releases market panics.

Policy makers should design policies which encourage foreign direct investment as foreign direct investment has enormous positive spillovers such as technology transfer which can promote the productivity and economic growth. And as FDI can contribute to long-run economic growth while portfolio investment only contributes to short-run economic growth, policy makers should attract more FDI than portfolio investments in the long run. However, during the process of implementing FDI-friendly policies, policy makers should make sure that FDI flows into the productive sectors which are of national priorities and have positive spillover effects in the economy. A successful implementation of such policies should conform with macroeconomic stability, political stability, rule of law and good governance.

## APPENDICES

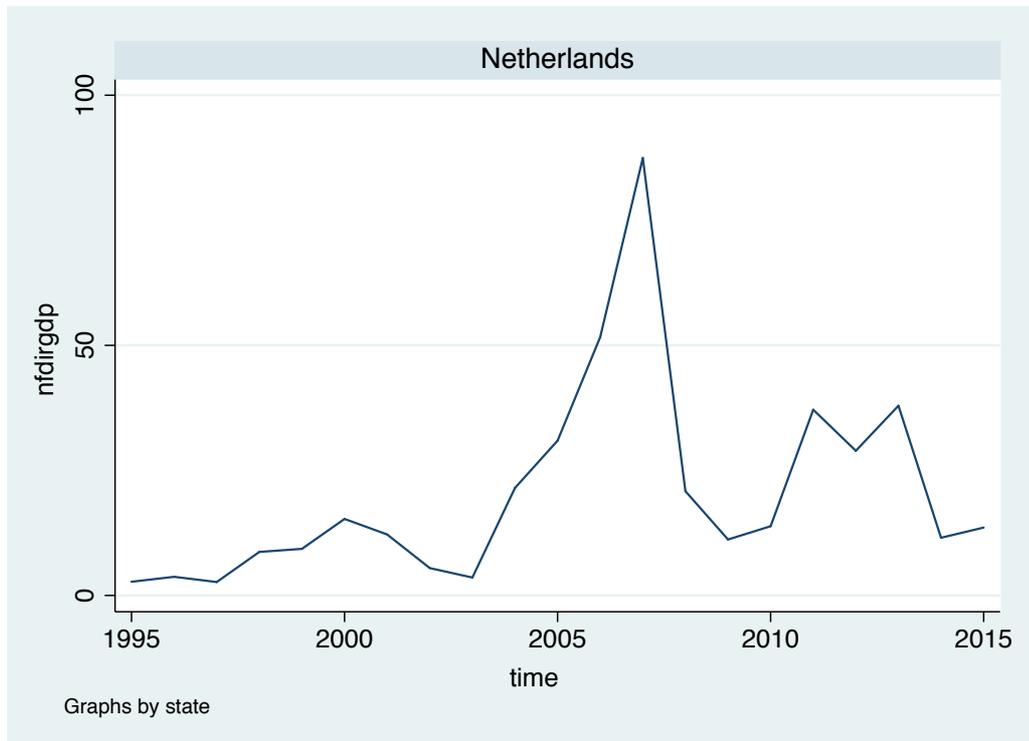
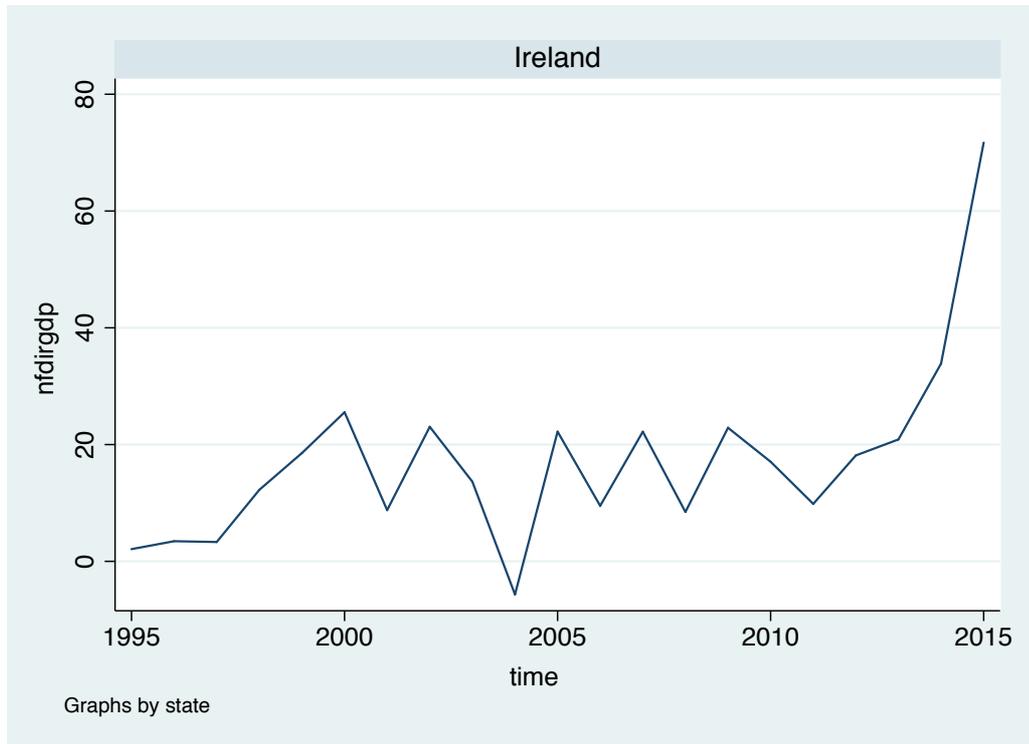
### Appendix 1: Variables List

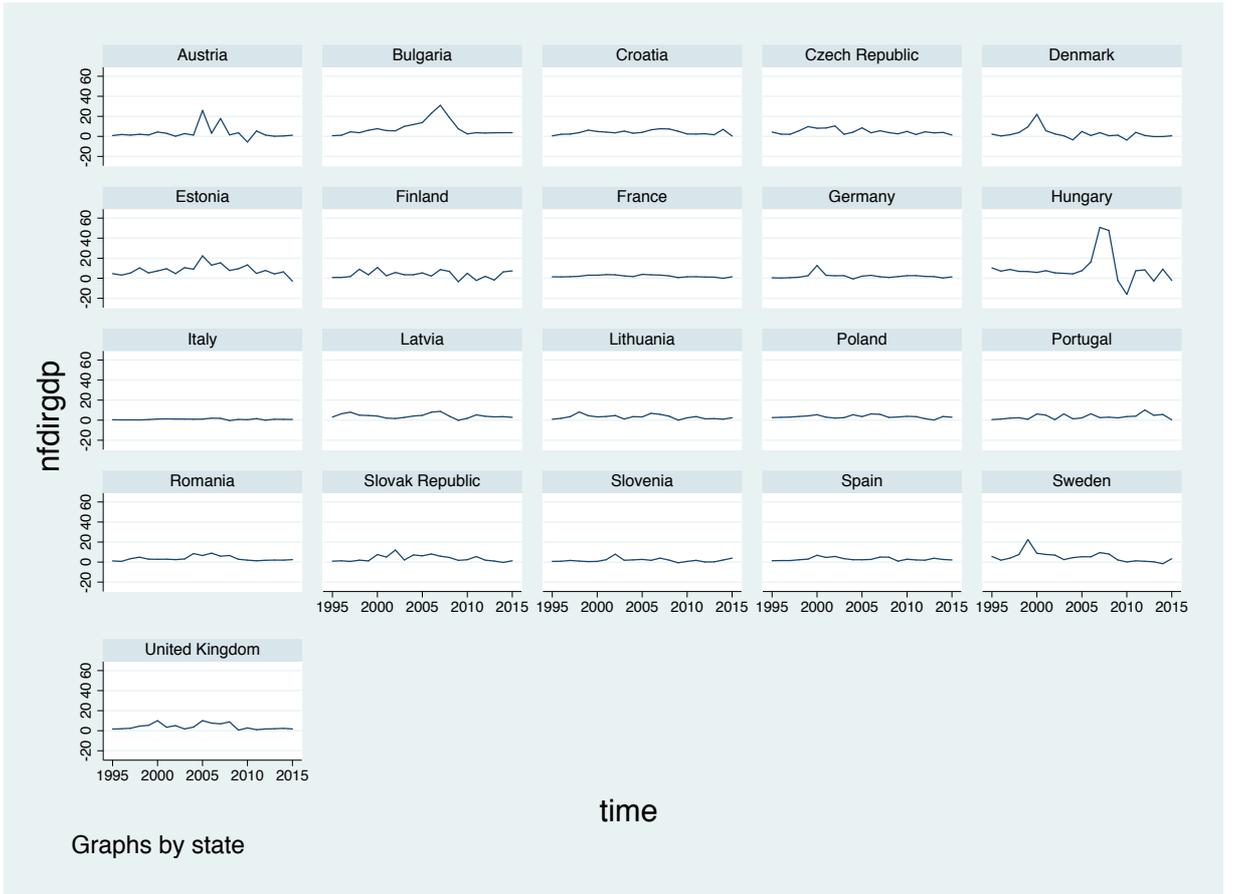
Variables		Description	Definition	Unit
Dependent Variable		Measures the economic growth	Per capita real GDP growth rate	%
Explanatory Variables (FINGLOB)	NFDIRGDP	Measures the degree of financial globalization	The ratio of net foreign direct investment inflows to real GDP	%
	NPIRGDP		The share of net portfolio investment in real GDP	%
Control Variables	LGPC	Tests whether convergence effect exists	Initial per capita real GDP in logarithm form	
	LGYS	Used as a proxy for human capital	Log of expected years of schooling	
	FD	Measures the financial development level	The share of domestic credit to private sector in real GDP as the proxy for financial development	%
	FD*FINGLOB	Measures the impact of financial developing on channelling the contributions of financial globalization to economic growth	The financial globalization measures multiply the financial development indicator	
	OPEN	Measures the effect of trade openness on economic growth	The ratio of the total volume of exports and imports to real GDP	%

	GOV	Measures the impact of government spending on economic growth	The ratio of government final consumption expenditure to real GDP	%
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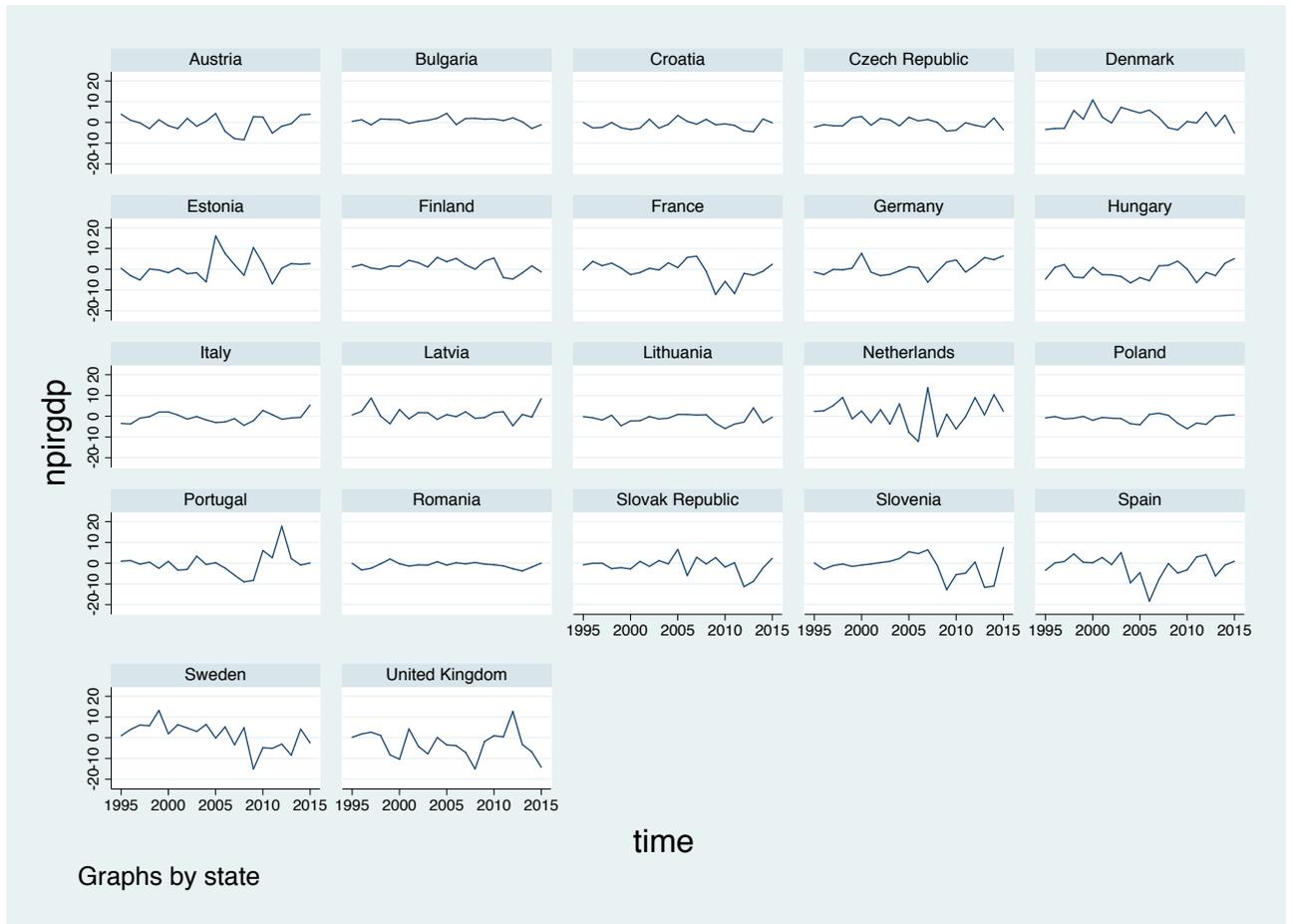
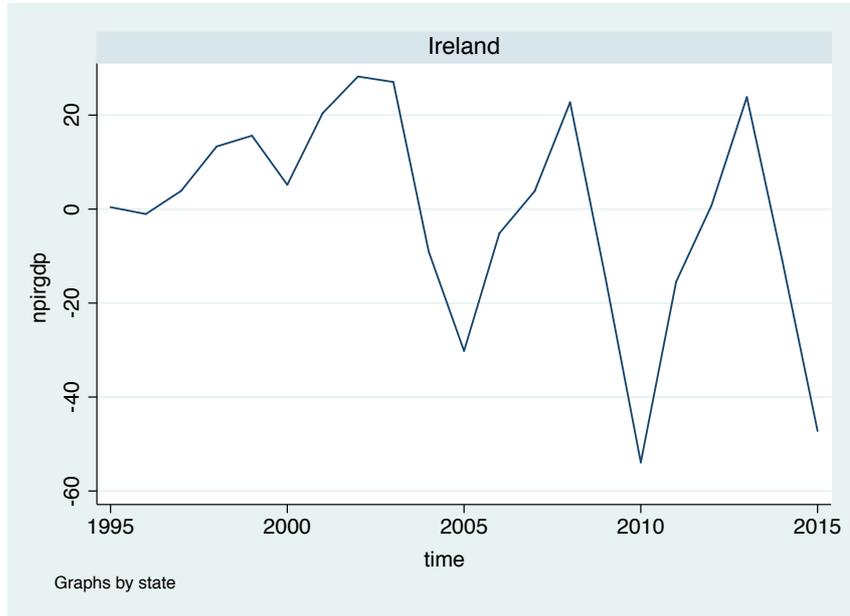
**Appendix 2: Country List**

Country Type	Country
Core	Austria, Denmark, Finland, France, Germany, Netherlands, Sweden and United Kingdom
Central and Eastern European (CEE) Periphery	Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia
Southern and Western (SW) Periphery	Ireland, Italy, Portugal and Spain

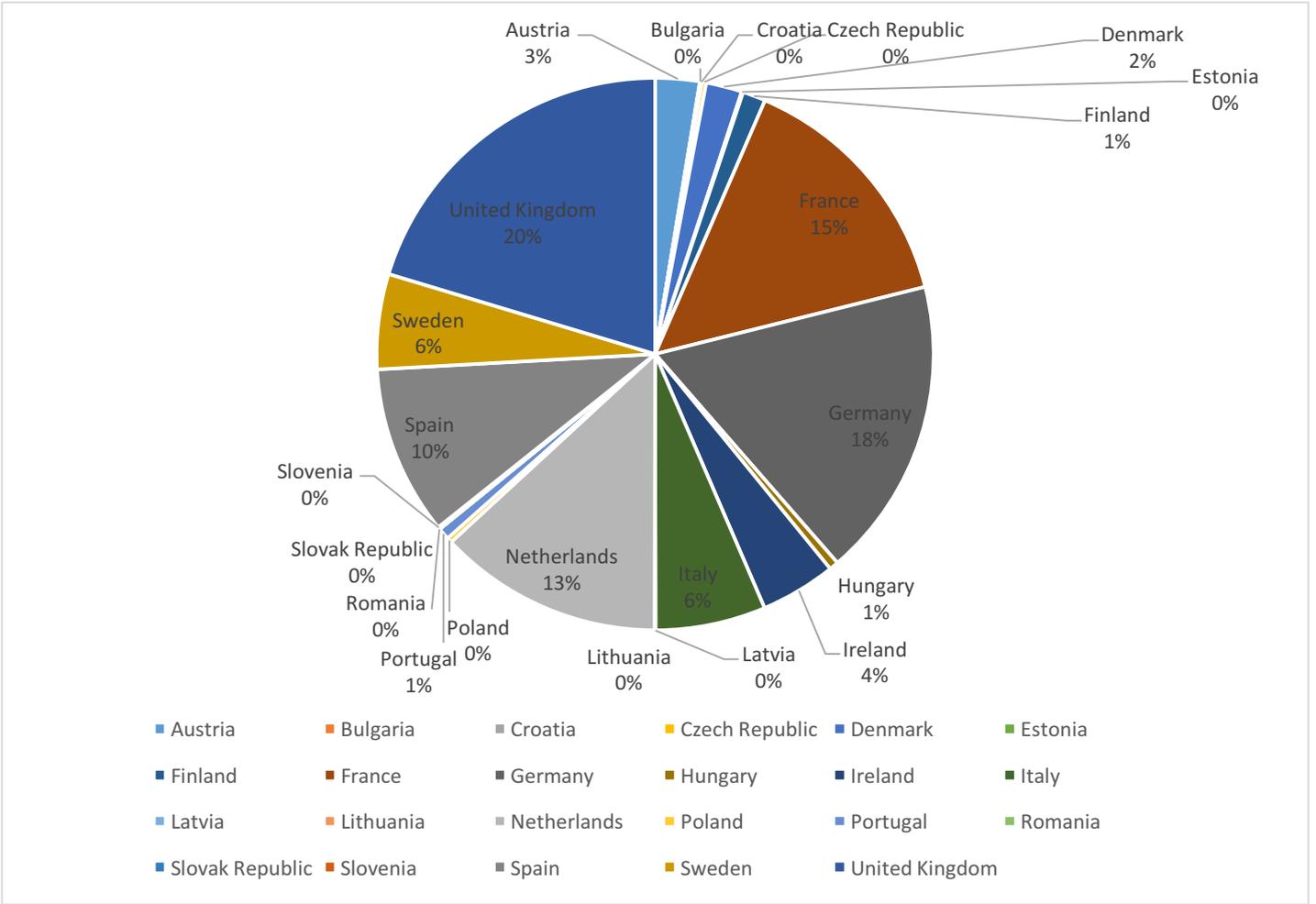
**Appendix 3: The Trend of Net FDI Inflows as a Share of GDP during 1995-2015**



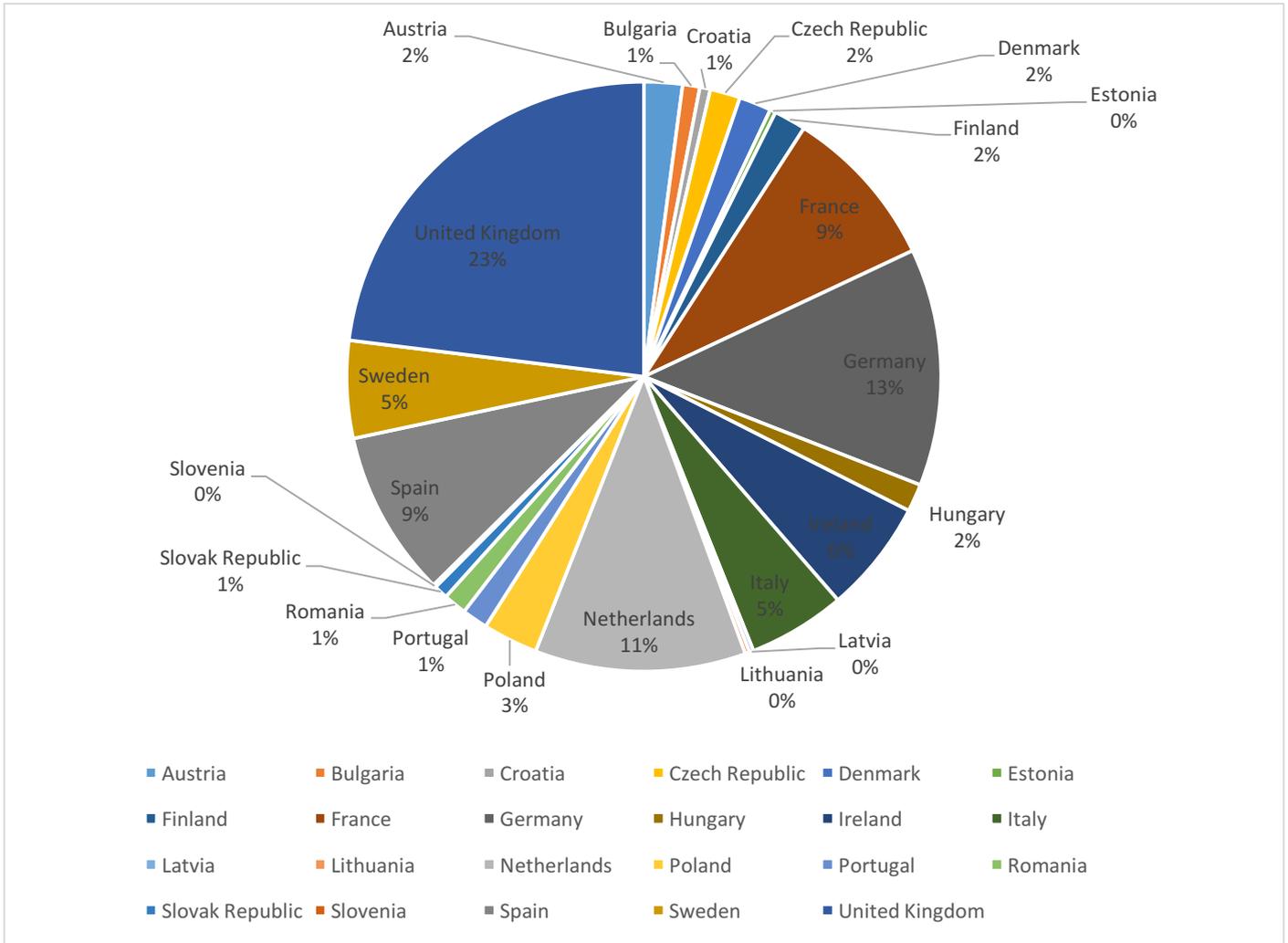
**Appendix 4: The Trend of Net Portfolio Investments as a Share of GDP during 1995-2015**



**Appendix 5: FDI Outflows Share of EU Countries**



## Appendix 6: FDI Inflows Share of EU Countries



**Appendix 7: Empirical Results for CEE Periphery in terms of the Relationship between Economic Growth, Financial Globalization and Financial Development**

*Dependent variable: per capita GDP growth rate*

Independent Variables	Before 2008		During and after 2008	
<i>Financial Globalization</i>				
NFDIRGDP	-0.087 (-1.45)		-0.553 (-1.30)	
NPIRGDP		0.123 (1.43)		0.182* (1.73)
<i>Control Variable</i>				
LGPC	-1.113 (-1.63)	-0.558 (-1.15)	-34.108*** (-6.08)	-36.997*** (-5.86)
LGYS	7.822 (1.11)	8.508*** (1.24)	19.083 (1.43)	21.500 (1.62)
FD	<b>0.031</b> (1.10)	<b>0.030</b> (1.39)	<b>-0.121***</b> (-3.91)	<b>-0.098***</b> (-3.58)
FD*FINGLOB	<b>-0.0006</b> (-1.64)	<b>0.0015</b> (-1.22)	<b>-0.0092</b> (-1.28)	<b>-0.0017</b> (-1.41)
OPEN	0.068*** (3.29)	0.060*** (3.01)	0.185*** (5.76)	0.191*** (6.01)
GOV	0.164 (1.06)	0.134 (-1.02)	-0.537 (-1.03)	-0.604 (-1.16)
Adjusted- R <sup>2</sup>	0.265	0.260	0.796	0.796
Durbin- Watson	1.956	1.962	1.955	2.019
F- statistics	5.86	5.72	29.54	29.46
N	132	132	70	70

*Notes: (1) \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% levels, respectively (2) t statistics in parentheses*

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