

# **Master's Thesis**

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## **Does financial integration have positive effects on GDP?**

### **Abstract**

This thesis focuses on the effects of financial openness on GDP growth in developing economies. This work is a follow up on previous work on financial openness, where the effects of financial integration on GDP growth were mixed. Previous articles stressed the presence of “threshold” conditions. This indicates that economies need to attain a certain level of development for financial integration to have a positive effect. These threshold conditions consist of corruption, strength of legal rights and institutional strength. Despite the lack of data on these “threshold” variables, the effects of financial integration over the long-term are examined, and also excluding the 2007 credit-crisis. Other studies also demonstrated differences in outcome of research into financial integration with various methods of measuring financial integration. For this reason, tests are performed with 3 different measures of financial openness, to see if there is evidence that financial integration has a significant positive effect on GDP growth. The various measures of financial integration give mixed results. Looking at earlier studies of this subject, the same results can be observed, the effect of financial integration remains unclear and further study with emphasis on the threshold effects is needed.

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## 1. Introduction

Financial globalization indicates the integration of financial markets. This integration should increase competition between suppliers of capital and therefore decrease the cost of capital. This should in turn create an increase in possibilities to invest. This investment should lead to an increase Gross Domestic Product (GDP). According to this logic, these effects should then be observable in the GDP growth of countries that have increased their openness to foreign capital.

Besides the expected positive effects of financial globalization, such as GDP growth, various other positive effects are expected. A decrease in cost of capital improves the access to capital and makes it possible for more people to start their own business. For companies it becomes cheaper to borrow and because less capital has to be spent on rent, the production costs can decrease. These lower production costs enable the companies to reach a large amount of consumers. However there is a downside to the increase of borrowing in the open economies. Because of the decrease in the cost of capital, people and the government could see this as a short term solution for their budget problems. To solve these current budget problems people might over-borrow, meaning that they are borrowing more than they can repay. Besides this, the increase in the amount of money in the economy could induce higher amounts of inflation (Prasad, Rogoff, Wei & Ayhan Kose (2003)).

Among the positive effects of financial integration, Income smoothing is considered as a major improvement. The more stable consumption should improve utility people derive from their income.

However there are also possible negative effects of financial integration, for example contagion effects. This means that economies become more vulnerable to foreign crises. The contagion effects are induced by lack of adequate risk management systems, poor strength of legal rights and corruption. This results in the decrease in the quality of the composition of the capital inflow, making the country more vulnerable to speculative attacks or contagion by other economies.

The evidence from previous empirical studies is mixed at best. This is in contrast with neo-classical growth theory. However in the various other empirical studies there has been evidence of some sort of "threshold". This "threshold" effect means that a certain level of a number of fundamental variables needs to be attained before the economy experiences the positive effects of financial integration. These threshold variables are considered to be strength of legal rights, corruption and strength of institutions.

Because of the importance of these "thresholds" focus will be not only on the financial globalization but also on what this effect entails.

The research will look into a number of countries where financial globalization has increased over the last years.

## **2. Historical perspective of financial integration**

To fully understand the importance of financial integration, the highlights of financial globalization will be discussed. The most important era of globalization took place between 1880 and 1914. It has been studied by many scholars, in particular by Bordo, Taylor, and Williamson (2003); Obstfeld and Taylor (2004); and Mauro, Sussman, and Yafeh (2006). After this first era of financial globalization, there was a withdrawal in international trade and financial trade flows as a result of the distrust towards other economies. After 1945, economies began to reform their policies and cooperated in the “Bretton-Woods” system.

### **2.1. First era of globalization**

The period from 1870 until the outbreak of the First World War, is considered to be “the first era of globalization.” During this period the dominant power was the British Empire, which resulted in the use of their rules and acceptance of their currency world-wide. This acceptance of foreign currency is important for trade but it also opened up foreign economies to foreign capital flows. Because the acceptance of British currency all over the world, meant Europeans could buy property in foreign countries. This ability to move capital more easily created a lot of opportunities to produce goods at lower costs, because of lower wages, or new products, using resources of the foreign country.

Since gold and silver had become rarer, economies moved towards creating their own currencies backed by gold or silver, with gold being the most common. The move from gold and silver coins towards gold-standard currencies was a success because of a number of reasons. The issue of currency was restricted and only legal for the government. Besides this, the existence of a central bank and use of a single unit of value also ensured stability of the currency. During this period there were almost no regulations controlling foreign capital flows, however there were a lot less crises during this period. Crucial for this development was that, during this period, Britain’s capital exports were counter-cyclical, which also helped to keep the economy stable with high growth rates. This has also been confirmed by research of Eichengreen and Bordo (2002).

During the First World War, countries chose national policies and started a period of de-globalization. The golden-standard on which the British, and most other currencies, were based was abandoned and as a result of the search of increased revenues to finance the war, but suffered significant inflation. After the First World War, countries returned to the golden-standard, however this was not possible for all countries. Because of the losses of gold to finance the War, a number of countries, mainly Germany, issued almost unlimited amounts of currency to buy foreign currency in order to pay for the repairs. In the early 1920s they suffered from hyperinflation, which effectively led to the end of the gold-standard.

### **2.2. De-globalization**

Not only Germany suffered large losses in the Great War, because of British debt to the United States at the end of the First World War, the United States took over the dominant position in the world market. The biggest downside of the U.S. dominant position was that their capital exports were pro-cyclical instead of counter-cyclical. This led to soaring growth of capital exports until 1928, when the entire capital exports stopped, as result of various shocks. As the crises intensified, financial institutions were hit hard and also trade was severely hit. The United States increased trade

barriers, and refrained from lending to the international capital markets, which lead to increase in contagion of the crises to other economies. The policies used by many governments to increase competitiveness and reduce their deficits actually worsened the situation. These policies created a situation where national incomes dropped, consequently demand dropped, resulting in massive unemployment and decline in world trade. These deflationary measures to increase competitiveness created a bond between countries using the same currency (such as the British Empire) which led to large reduction in international capital and investment flows. This was a result of the deflationary measures that were used by this area, which could trade among each other without having to compete on currency. This is described as a period of de-globalization and, as many countries noticed that their isolationistic policies did more harm than good, economists started to work on a currency system to improve trade.

### **2.3. Reform**

During the beginning of the Second World War, economists started with the concept of the Bretton-Woods system. This system was basically very similar as the pre-War golden-standard currency policies, but now the link was with the U.S. dollar. This was seen as the best way, as they had bad experiences with floating exchange rates during the 1930's and the so called "begger-thy-neighbour" policies. Because most currencies were now linked to the U.S. dollar, to prevent inflation U.S. could buy more gold as the U.S. dollar in turn was linked to gold. This time however, having learned their lesson after the inter-war years, institutions were created to control the amount of currency countries brought into the economy, so they couldn't upset the natural flows. The IMF was created to uphold the rules and to manage international public affairs. While the World Bank was created to aid the recovery of post-war economies, in order to induce international trade.

### **2.4. Post Bretton-Woods**

Despite the fall of the Bretton-Woods exchange rate in 1973, both institutions survived and both are still very powerful and active to help various economies achieve a healthy and stable economy so international trade and international capital flows from and towards the rest of the world increase. These institutions look after the stability of the world economies and in this effect are important to the prevention of crises. Because these institutions try to create a stable world market, they also look into the international trade flows and international capital flows. During the Bretton-Woods period, the international capital flows towards developing economies were limited as they were still colonies. These investments fell under domestic investments for a large number of countries.

However, after the fall of Bretton-Woods, in the 1980's and 1990's international capital flows increased. These increased capital flows were in search of higher returns in foreign economies. This meant that developing economies received the most capital as the capital is the scarcest in these economies and therefore should give the highest returns. However in these years, the amount of crises increased. Especially developing economies have been the "victim" of these crises, which has been attributed to the lack of strength of developing economies.

With this strength it is mostly referred to the strength of government institutions and regulations. These government regulations controlling foreign capital flows and foreign investment were, especially in the 1980's and 1990's at a very low level. This meant investors had the opportunity to allocate capital as they saw fit. This had as major drawback that most investors came from developed economies, and that capital flows had a high correlation with their domestic economies.

This led to large fluctuations of capital flows towards developing economies, which instead of stabilizing the economy, was more likely to disrupt the economy.

## **2.5. Conclusion**

According to the neo-classical growth theory, an increase in international capital flows should lead to increased GDP. Other theories (Obstfeld (1994); Acemoglu and Zilibotti (1997)) suggest that financial integration leads to more stable economies, however during the last 200 years; there have been only a few periods where these effects could be observed as a result of war, lack of data and so on. As a result of the scarcity of this situation, the relation between financial integration and GDP growth has been difficult to establish empirically. Since the 1980s there has been a new era of financial integration going on. During this last period, a large amount of data on financial integration was accumulated. Results from various studies into the relation between financial integration and GDP growth have been mixed at best; therefore a study on the long-run effects using additional data could shed new light on this issue.



### **3. Literature review**

In this part I will present the outcome of previous research into the effects of financial openness (or financial globalization). First, the general information on these effects is described. After this, some possible explanations of the expected effects will be examined. This means looking into better risk allocation, domestic sector improvement and volatility reduction. Besides this the macroeconomic volatility and the effects of crises on volatility will be discussed. After this the transmission of volatility through financial channels will be discussed as this is one of the possible negative effects of financial globalization. Finally, the absorptive capacity and the benefits and risks of financial openness will be discussed before the next chapter will proceed with the model.

#### **3.1. Earlier research**

There have been many researchers who have examined the possible effects of financial integration. The result of all this research has not provided conclusive proof that financial integration has a significant positive effect on GDP growth in an economy. This lack of conclusive evidence can come from the various ways to measure financial market liberalization. Therefore the various ways to measure financial market liberalization will be discussed in the Methodology chapter of this research. However because of these various ways of measurement and also the period and the length of the period under review, it creates an image that the GDP growth effect of financial market liberalization is conditional. Prasad, Rogoff, Wei & Ayhan Kose (2003) find that there is a difference in the effects for various groups of countries. Various researchers observe a sort of “threshold” effect from which financial integration seems to have positive effects on GDP growth. These “threshold” effects are most probably caused by the lack of strong institutions and legal rights which have a negative effect on capital inflows a financial integration (Senhadji (2000)); however this will be discussed more elaborately later.

Another observation from previous work is the increased capital flows from industrialized countries towards developing countries. These flows can be broken down into push and pull factors (Calvo, Leiderman, and Reinhart (1993)). These pull factors include opening up of financial markets to foreign investors and other actions that attract investment. On the other hand investors are pushed towards other economies by their search for higher returns. Especially the increased investment by institutional investors has increased the capital flows from industrialized economies towards developing economies immensely. These so called “North-South” flows are of great importance for developing economies. The total value of these capital flows are not so immense from the perspective of the individual institutional investor but because of the relatively small size of the economy in which it is invested, it has a large impact (Prasad, Rogoff, Wei & Ayhan Kose (2003)).

In previous analysis there appears to be a difference in groups of developing economies. This division between these two groups can be witnessed in the amount of capital flows towards these countries. Therefore these have been named “More Financially Integrated” and “Less Financially Integrated”. These MFI countries seem to be more open towards international financial markets and therefore receive more capital flows. Suggestions have been made that this is also a result of other factors such as strength of institutions, legal rights and ease of doing business (Calvo, Leiderman, and Reinhart (1993)).

### **3.1.1. Reduced cost of capital by better risk allocation**

The theoretical model by Henry (2000) suggests a reduced cost of capital by better allocation of risk. The theoretical effects of better risk allocation are that because of decreased risk, borrowers need to pay less risk premium. This reduced cost of capital should in turn lead to an increase in investments because the expected return will be lower. This increase in investment, should lead to higher implementation of technology, which in turn should increase GDP growth. Abiad, Oomes & Ueda (2008) find robust evidence that suggests that liberalization of financial markets leads to better allocation of risks. However they also observe that the better allocation of risk doesn't lead to improvement of quantity but the quality of investments. This indicates that the improved risk allocation takes place, however not all the theoretical benefits of improved risk allocation seem to materialize. The improved quality of investments as a result of improved risk allocation is logical, since borrowers now have more options and will try to avoid high risk loans or investments which can be reversed. However this should also lead to lower average risk premiums, which in turn should lead to more international flows. Investors with a lower risk-appetite can now also participate, because of the lower risk and the investors looking for higher returns will invest in other countries. However, this reduced risk premium should increase capital flows of companies and this should help with their liquidity as their interest payments also decrease. This increased liquidity should in turn lead to increase in their investments in production techniques and also in subsidiaries in other economies.

### **3.1.2. Spillover effects**

Another positive effect of financial market liberalization and especially Foreign Direct Investment (FDI) flows towards developing economies are the expected technological spillovers (Borensztein, De Gregorio, and Lee (1998) and Blalock & Gertler (2008)). These technological spillovers are caused mainly by the introduction of higher technological production facilities. The foreign investments in these technologies can spill over onto the domestic sector. However for these technological spillovers there is also a threshold. This threshold is defined with respect to human capital. Only if a minimum level of human capital is present in the destination country, the country can benefit from technological spillovers. The stock of human capital defines the ability to adapt new technologies. Therefore human capital is one of the necessary conditions for FDI flows to have a positive effect on GDP growth. This will be discussed in more detail in the chapter on Absorption.

### **3.1.3. Domestic sector improvement**

Besides the technological spillovers there are also other benefits for the developing economy. The increased openness of the financial markets leads to increased possibilities to access money. This increased access creates more competition for domestic financial institutions. As analysis by Levine (1996) and Caprio and Honohan (1999) shows, development of a countries financial sector can lead to a number of positive effects on the economy. For example the opening up of financial markets may lead to a foreign bank to enter the domestic market. This foreign entrance could lead to increase in number of products offered, improved services, or improved legislation for financial sector. All of these developments should benefit the domestic market and its consumers.

#### **3.1.4. Specialization and volatility reduction**

Imbs and Wacziarg (2003) find in their study on the stages of diversification that poor developing countries seem to shy away from specialization up until they reach a relatively high level of per capita income. In previous analysis it has been shown that specialization leads to economic growth but it has also been shown that there are a number of drawbacks to specialization. If for example there is not an adequate risk-management system, specialization can lead to high volatility. If an economy is very specialized, it becomes very vulnerable to crises. This is logical as a diversified economy can fall back on other industries if one sector feels the consequences of foreign or domestic crises. As is observed earlier in this thesis financial liberalization can reduce risk by improving allocation of capital and risks. This seems to concur with the result of the study by Kalemli-Ozcan, Sørensen, and Yosha (2001), who find that for certain developed economies specialization leads to distribution of risks.

## **3.2. Macroeconomic volatility**

In this part the effects of macroeconomic volatility on GDP growth will be discussed.

Macroeconomic volatility is of enormous importance since consumption patterns are based on the permanent income (Friedman (1953)). Consumption is used as a main determinant of wealth, and according to the Permanent Income Hypothesis of Friedman (1953) consumers only consume their permanent income. The volatile part of their income is not used for consumption, but saved therefore it is important for an economy to experience low volatility. Although this research does not focus on macroeconomic volatility it will be discussed here since it is an important consequence of financial openness. First the idea of macroeconomic volatility and financial openness and the link between these will be looked into. After this the importance of risk management systems and the effects of crises on macroeconomic volatility and GDP growth will be discussed.

### **3.2.1. Importance of low volatility**

As discussed before, theory suggests that increased financial openness leads to better risk allocation. This is supported by empirical evidence in the analysis of Abiad, Oomes & Ueda (2008). However Rogoff, Wei, Ayhan Kose & Prasad (2003) find that the expected reduction in volatility as result of increased financial openness does not hold for developing economies. So despite of the theoretical and the empirical evidence for some countries, developing economies do not benefit from better risk allocation as a result of increased financial openness. It is not just better risk allocation that developing economies miss, there is also the smoothening of consumption that is to be considered. Consumers and therefore the economy are assumed to be risk-averse. This would mean that consumers prefer to use financial markets to prevent income loss due to crises, or in other words, consumers try to minimize the risk of crises by diversifying. This would mean less vulnerability to crises and an increase in smoothness of consumption. This concurs with the assumption of the permanent income hypothesis (PIH) by Milton Friedman. This states that people determine their consumption by their expectations of future income. If they can determine their future income with more certainty, their consumption can rise and so will their welfare.

However, to find out why these benefits seem to be out of reach for developing economies, one needs to look beyond the financial openness. Financial openness doesn't seem to be a necessary condition for GDP growth (Prasad, Rogoff, Wei, and Kose, 2003). In their analysis, Prasad, Rogoff, Wei and Kose (2003) also find that it is necessary for economies to have a good risk management system in place to cope with risks of specialization as result of financial integration. When proper risk management systems are not in place, risks can increase as a result of increased exposure to foreign risk. This increased exposure to foreign risk, combined with specialization of the economy to compete in the international market, domestic economy becomes even more vulnerable to crises.

### **3.2.2. Consumption Volatility**

To investigate the real effects of financial integration, the distinction needs to be made between two types of volatility. Theory suggests that consumption volatility is the most important since output volatility is expected to remain the virtually unchanged. This is based on the belief that governments pursue a counter-cyclical policy, so when private consumption decreases, government consumption is expected to increase.

## Evolution of Total Consumption (as % of GDP)

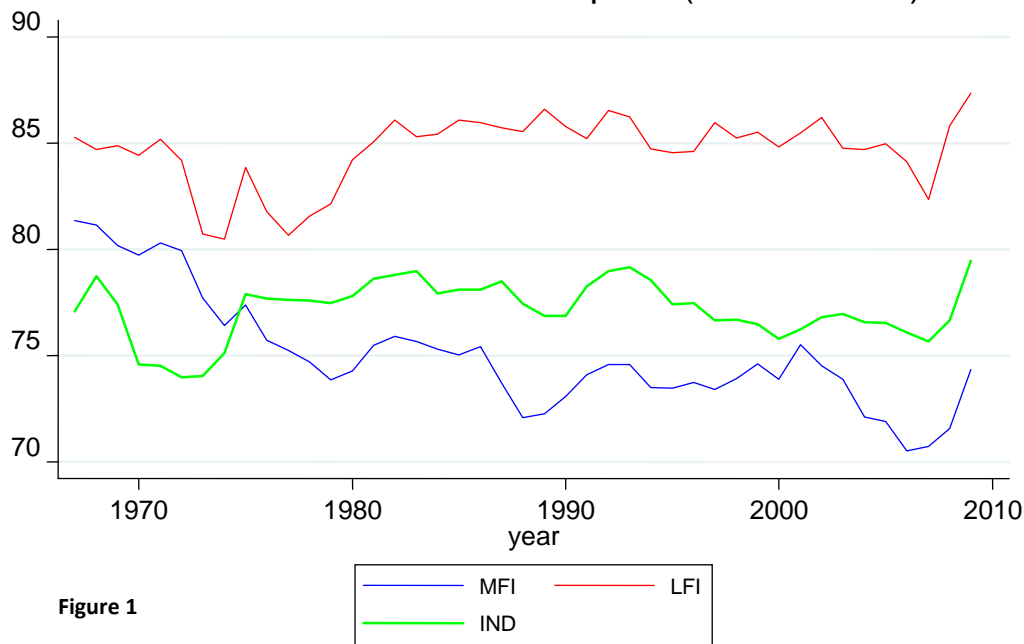


Figure 1

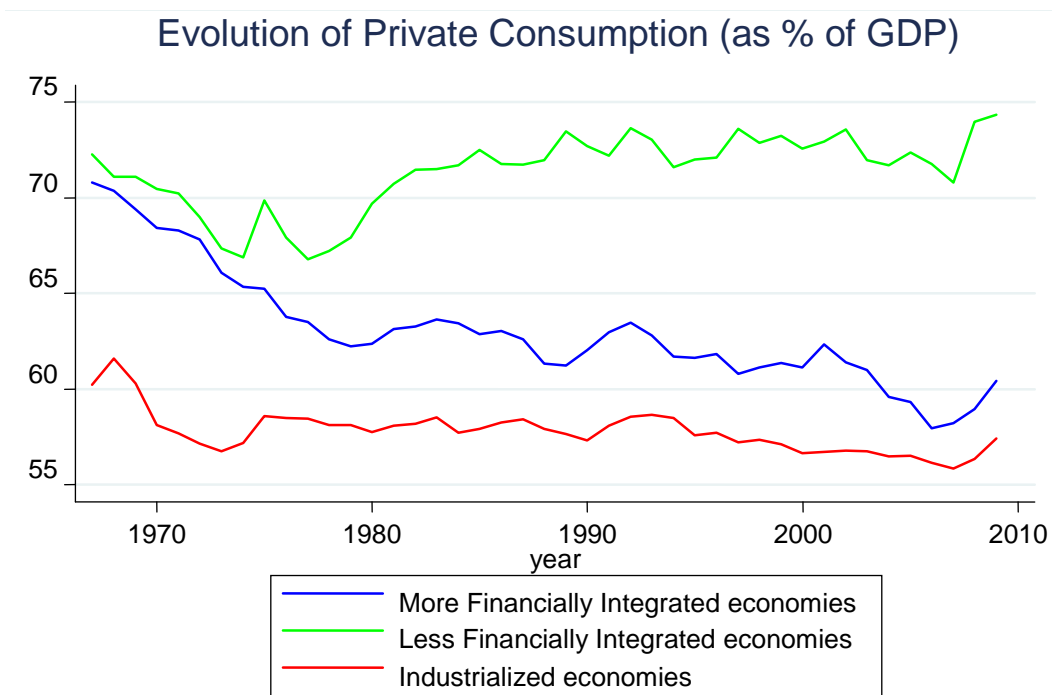
Figure 1 shows that the percentage of GDP spend on Total Consumption has decreased over time. This is an indication that more of GDP can be spend on other products or invested.<sup>1</sup>

Consumption volatility should, according to the theory decrease as financial integration leads to a better allocation of risk and therefore should reduce the risk of loss of income. Because of the more stable income, the consumption can be larger as people consume only their permanent income (Friedman, 1957 & 1963). Rogoff, Wei, Ayhan Kose & Prasad (2003) find in their research into the two forms of volatility that, the volatility of output on average was lower for MFI countries than LFI countries. This makes sense assuming that MFI countries often have better institutions, because of these better risk management systems volatility is reduced. Despite the assumption that better risk management systems are in place, MFI countries have a limited decline in volatility compared to the Industrialized- and LFI-countries. However it is also good to notice that on average the total and private consumption for MFI countries was still lower than those of LFI countries.

For consumption volatility output, Rogoff, Wei, Ayhan Kose & Prasad (2003), find that a higher degree of financial integration coincides with higher volatility for LFI- and Industrialized-countries in the 1990s. However for the MFI economies the consumption volatility has increased in the same period compared to the 1980s.

Levchenko (2005) finds that consumption volatility fell after capital market liberalization in economies with well developed financial institutions and good quality of institutions. The research by Levchenko therefore confirms the existence of a threshold to decreasing volatility.

<sup>1</sup> In this graph, we use the means of the country groups for Total consumption observations



**Figure 2**

In this graph, we use the mean of each country groups to determine the private consumption as percentage of GDP

### 3.2.3. Possible explanations for increased volatility

The first possible explanation is based on the theory that as a result of increased capital availability, investments in better production techniques can be made. These better production techniques lead to a decrease in costs per product, which will make the products more available for consumers; this will increase profits, which will result in higher income for the workers. These workers can use this higher income to consume, therefore consumption will rise.

The second possible explanation can be found in the loosening of liquidity constraint to profit of international capital flows. This loosening frees up a certain amount of capital, this means less capital needs to remain in the reserve and more can be financed with private capital. This means average capital costs decrease and profit will increase, for investors, this means that they will receive a higher return. This makes it more profitable to invest in foreign economies and would therefore increase the capital flows to foreign economies. As we have seen before the increase in capital flows can theoretically increase volatility.

The third part is twofold, because of the pro-cyclical nature of capital flows. This means, when economies thrive, large amounts of capital flow towards foreign economies. However, because of the pro-cyclical nature, when economies flounder capital flows towards developing economies diminish enormously. There is some empirical evidence by Reinhart (2002) which supports this explanation. In this study, evidence of pro-cyclical nature is found in sovereign bond ratings. These ratings have a large influence on the cost of capital for economies, since this is an indicator of their credibility. The pro-cyclical nature of these bond ratings and as a result the cost of capital, means that in the event of a crisis, the cost of capital will increase and decrease when the economy is

booming. Similar evidence is found by Kaminsky and Reinhart (2001), although they investigate a more direct link between pro-cyclicality and capital behavior.

In their paper they look at the channels through which volatility is spread. This spread of volatility is effectively how crises affect other economies. They also find that true contagion is mostly due to herding behavior by investors. So in the event of an economic downturn, investors will pull their investments out of foreign economies because of uncertainty. This will decrease returns, which will trigger more investors to withdrawal their capital from their investments. This combined with the pro-cyclical nature of sovereign bond ratings, creates circumstances in which “sudden-stops” as described by Reinhart & Calvo (1999) are inevitable. These “sudden-stops” indicate the acute stop of foreign direct investment and other foreign capital flows to developing economies.

These “sudden-stops” have an enormous impact on the developing economies as they rely heavily on foreign capital flows. As a percentage, the foreign investment of industrialized economies is small, however for the receiving economy, this capital amounts to a large portion of their domestic capital. This impact on a developing economy will translate itself into a decrease in private consumption, as the shortage of capital will create difficulties for a large number of companies.

#### **3.2.4. Crises**

A beginning has been made in discussing this topic, however; the empirical evidence shows that crises in developing economies are no longer country-specific but keep affecting more developing economies at the same time (Mauro, Sussman, and Yafeh, 2002).

Further studies into the range and effects of crises and volatility by Beirne, Schulze-Ghattas & Spagnolo (2009) finds positive correlation between volatility in mature and developing stock-markets. Crises in mature markets increase volatility in emerging markets; however crises in emerging markets do not mean increased volatility in mature markets.

Calvo and Reinhart (2000 and 2002) also observe that currency crises in developing economies often leads to a “sudden-stop” of capital inflows and these are linked to significant negative outflow effects. The increased range can arise in various ways; companies can be directly affected by currency crises, as banking problems can become larger which can lead to problems for productive and solvent firms. But besides this, the stop of foreign capital can lead to reduced export, which reduces production, which in turn reduces domestic consumption etc.

As discussed before the negative effects of such a crisis are much larger in developing economies because of their higher dependence on foreign capital. And because of the lack of decent social systems the social cost of these crises are much larger (Baldacci, de Mello, and Inchauste, 2002). This indicates that financial openness is a negative development for developing economies. It increases vulnerability to foreign crises and the effects of crises are increased because of the larger dependency on foreign capital. However, this doesn't need to be the case. The threshold effects, which are discussed previously, can give a signal to foreign investors, which can protect the economies from low quality of capital inflows. This low quality of capital makes economies vulnerable to foreign crises; however this will be discussed in a later stage more elaborately.

### **3.3. Intensified transmission of volatility**

The effects of volatility are large for developing economies, even if the developing economy is not directly affected. The effects of crises in a mature economy can through certain channels infect developing economies. High volatility in the mature economy increases volatility in the developing economy (Beirne, Schulze-Ghattas & Spagnolo (2009)), where it can have a severe impact. The focus will be on how volatility is transmitted through financial markets, with first the quality of the foreign capital; secondly in what other ways an economy can be infected with the effects of foreign shocks.

#### **3.3.1. Quality of foreign capital**

As this is the case, it is necessary for developing countries to attract a good quality of Foreign Direct Investment (FDI) flows. A lower volatility in the foreign country means a smaller possibility of “sudden-stop” or withdrawal of capital.

That composition of capital inflows increase vulnerability to foreign crises is shown by Detragiache and Spilimbergo (2001). They identify that especially short-maturity of external capital are hazardous. This short-maturity makes it possible for lenders to rearrange their debt in a different country to diversify their risk as a result of macro-economic developments.

Reinhart and Reinhart (2001) discovered a highly positive correlation between net U.S. FDI flows and U.S. business cycles. However, they find a negative correlation between U.S. bank lending to foreign economies and U.S. business cycles. This would mean that the U.S. follows a cyclical policy and bank lending and FDI flows seem to exclude each other. Edison and Warnock (2001) find evidence to support this, as they looked into portfolio equity flows from the U.S. to developing economies. These portfolio equity flows from the U.S. are negatively correlated with the output growth of the U.S., and besides this also negatively correlated with U.S. interest rates.

The reasoning behind this observation is the investors search for a higher profit as U.S. interest rates decrease. The investment abroad yields higher interest and because of this outflow of capital, domestic U.S. companies have a higher cost of capital. This higher cost of capital to compete with foreign investment possibilities reduces output growth. This positive correlation between U.S. firms and the U.S. economy makes the developing economies vulnerable to U.S. crises, since a downturn in U.S. firms indicates a downturn in the U.S. economy which, as we have seen means a decrease in capital flows to foreign economies.

#### **3.3.2. Contagion**

Because of fast transfer of shocks through financial channels, the effect of a crisis increases with better financial integration. That developing economies become more vulnerable to external effects as financial integration increases, even when controlling for trade linkages and capital controls is demonstrated by Dellas and Hess (2002).



This increases the risks for financially integrated economies as they have to observe and account for domestic and foreign crises. However because of preferences of investors, for example to find high returns or diversify their portfolio, contagion increases.

Literature describes two types of contagion: fundamental based contagion and pure contagion. The largest differences between these two types of contagion lie in the fact that pure contagion does not require weak fundamentals. The fundamentals based contagion is in essence the situation where an economy has weak fundamentals and because of a rearrangement of investor's portfolio or bank lending the economy is pushed into a crisis, as shown by Kaminsky and Reinhart (2001) and Rijkkeghem and Weder (2000).

The pure contagion is difficult to influence by policy because it is caused by large changes in capital flows unrelated to the fundamentals of the economies. Kumar and Persaud (2001) find that these large changes in capital flows are a result of changes in risk appetite. Because of this change in risk appetite, investors change their investment to keep their portfolio well-diversified.

### **3.4. Absorptive capacity and Governance**

In this part, the effect of absorptive capacity on financial integration will be discussed. Absorptive capacity of an economy can be described as the ability to recognize and apply new information. This is of great importance to benefit fully from financial integration. Threshold effects and absorptive capacity will be discussed in the first part, since this is of large influence on the outcome of the study into the effects of financial integration. In the second part the influence of governance on the absorptive capacity is looked into. In the final part the influence of domestic governance on volatility reduction is discussed.

#### **3.4.1. Threshold Effects and Absorptive Capacity**

Despite the difficulty to find strong conclusive evidence to prove that financial integration increases growth, previous studies have found certain “threshold” effects which seem to be a prerequisite for GDP growth.

For example in the analysis of Borenzstein, De Gregorio, and Lee (1998) they find that Human capital needs to exceed a certain level for Foreign Direct Investment (FDI) to outperform domestic investment.

Besides human capital, there are also quality of government institutions, macro-economic policies and size of domestic financial markets to review. There is evidence that all these variables benefit of high absorptive capacity. Other studies have found that high absorptive capacity is important to benefit from technological spill-overs (Aitken and Harrison (1999); World Bank(2001); Bailliu(2000); Arteta, Eichengreen, and Wyplosz(2001); and Alfaro and others( 2002)).

This evidence from previous studies seems to confirm the earlier assumption that, in order for economies to experience the benefits of financial integration, certain “thresholds” need to be passed.

#### **3.4.2. Governance**

As can be expected, governance has an important influence on the absorptive capacity of the domestic economy. In this part the importance of government policies to receiving the benefits financial integration should yield is discussed. The most important areas of interest for a government in which it can help financial integration yield the theoretical rewards are; transparency, corruption, strength of legal rights and supervision on financial sector.

Governments should look into these areas since poor performance in any of these areas reflect uncertainty for the investors, which will lead to higher expected returns to cover the additional risk faced by investors. This will lead to reduced competitiveness compared to other economies, which have performed well in these areas.

Of the various capital flows that an economy can experience, previous analysis by Reisen and Soto (2001) FDI flows can be amongst the most beneficial for improving economic growth.

The various actions that have negative effects on the quantity of FDI flows are discussed before, but there are two components to look at when observing FDI flows. First of all, there are quantitative

effects to be accounted for, besides this there are also qualitative effects of FDI flows, which are probably the most important for foreign capital to have a positive effect on the domestic economy.

What applies for the general investors, also applies for investors with a longer investment horizon under which FDI flows fall. These consist of participations in companies and good governance is clearly very important. If for example, the strength of legal rights is very limited, there is the possibility that the investment will be annexed by the domestic company. Earlier research has shown that FDI flows favor countries with good governance so much, that even if we hold constant the size of the country, labor costs, tax rate, laws, and incentives specifically related to foreign-invested firms and other factors.

Especially the reduction of corruption seems to benefit the FDI inflows for developing economies. Analysis has found that reducing the corruption is more effective in attracting FDI flows than a possible reduction in taxes. Corruption is considered to be as damaging to the quantity of FDI flows as a corporate tax on FDI flows.

Another example on increasing FDI flows is the transparency of government operations, Gelos and Wei (2002) find that more portfolio investment flows towards countries with a higher level of transparency. This still holds if one considers liquidity of the market, exchange rate regime, other economic risks, and a number of other factors. Investors react also very strong to transparency, because there is no uncertainty there is hardly any herding behavior. The effect of uncertainty on investors can disrupt an economy by the herding behavior that they demonstrate. This uncertainty and herding behavior seems to be more severe in countries that lack transparency.

### **3.4.3. Domestic Governance and the Volatility of International Capital Flows**

Despite the different levels of volatility amongst different countries, there is some evidence that these levels of volatility are related to the macro-economic policies and domestic governance. This indicates that, as discussed before, developing economies can affect the volatility and various other effects of financial integration. Frankel and Rose (1996) and Schneider and Tomell (2001) found that capital account crises are often preceded by an overvalued exchange rate and overextended domestic lending boom. These large amounts of debt combined with the correction of the exchange rate that is to be expected, increase external debt enormously and trigger a crisis.

An important part of the domestic governance and the way it can influence the effects of financial integration is supervision on financial sector and the domestic capacity of financial regulation. Kaminsky and Reinhart (1999); Arteta, Eichengreen and Wyplosz (2001) find that low supervision and domestic capacity of financial regulation have a high tendency to experience banking a currency crises. This is of course something that is confirmed by the crisis of 2007, which was a result of poor supervision, not only domestic but also international supervision and poor financial regulation. This poor financial regulation was also, not just domestic but also poor international regulation, which led to the creation of financial products which created a smoke cloud through which it became very difficult to oversee the risks of these products.

Previous studies on governance and structure of government institutions by Frankel and Rose (1996) suggests that the structure of capital inflows is related to the possibility of a crisis. They conclude

that an economy that depends more on foreign bank credits and less on FDI flows will have a higher probability to experience a “sudden stop” or a capital account crisis.

Macro-economic policies and domestic governance are an important determinant for the quantity of foreign capital inflows; however a study by Carlson and Hernández (2002) demonstrates that it is also important for the quality of capital inflows. This means that composition of capital inflows is determined in a large way by the domestic governance and macro-economic policies. Even when holding constant for other factors, countries with weak domestic governance, seem to have a relatively small amount of FDI and large amount of foreign bank lending (Wei, 2001). Other analysis has indicates that good governance affects good governance on economic growth in a number of ways (Mauro, 1995, 1997 and Abed and Gupta, 2002).

So the policy that the government uses is very important to the amount of FDI inflows a developing economy receives. The policy is also important to attracting good quality of FDI flows, which is also important for output growth and vulnerability to crises. This is an explanation to the “threshold” effect which is witnessed in various researches.

## 4. Methodology

In this part the method of determining financial openness and the effects of financial openness on GDP growth is presented. First the method used is explained, after this the focus will be on the variables used and the tests performed on the data to establish if the data can be used in the model.

There are important differences between countries, their economic structure and their endowments. To cope with these differences the countries are divided into groups with similar basic structures and panel analysis is used to estimate the effects. Panel analysis means that the data consists of a time series for each cross-sectional member (country) in the data set.

In the panel analysis, the model looks similar to the model in a simple regression however there is one major difference.

In a second step, the 3 groups of countries are regressed separately. This means that for each group calculations are based on the different countries within this group, which gives a more clear result of the effects of financial integration.

The fixed effects model is used, the main purpose of the fixed effect model is to control for unobserved heterogeneity when heterogeneity is constant over time.

To reflect the fact that the population may have different distributions in different time periods, we allow the intercept to differ across periods, usually years. This is easily accomplished by including dummy variables for all but one year, where the earliest year in the sample is usually chosen as the base year.

Furthermore, checks are made for heteroskedasticity by using a modified Wald test in Stata. The conclusion from this test is that there is heteroskedasticity in all fixed effects models. This heteroskedasticity is corrected for by using the robust (ro) command in Stata.

The robust command makes Stata create a robust variance estimator based on a variable list of equation-level scores and a covariance matrix. Robust is a command that computes a robust variance estimator based on a variable list of equation-level scores and a covariance matrix.

Various studies have shown that the cross-sectional dependence causes serious bias in the standard errors on standard errors (Christie (1986), Bernard (1987), Lee, Pesaran, Smith (1997), Pesaran (2004, 2007)). Cross-sectional dependence is tested for the Industrialized and MFI economy models by performing the Pesaran's test of cross sectional independence. However the test cannot be performed for the LFI economies, as there is too much instability within this group. This is an indication that there are economies in the LFI group with a higher level of economic fundamentals. This can be due to the fact that the country selection is used as in the study by Rogoff, Wei, Ayhan Kose & Prasad (2003).<sup>2</sup> Country selection will be discussed more elaborately in the next part.

However, since both Industrialized and MFI economies test positive for cross-sectional dependence in all models, this dependence is assumed for LFI economies. There are various ways to correct for

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<sup>2</sup> Since 2003, a number of economies has moved from one group to the other, however to compare this study with the study by Rogoff, Wei, Ayhan Kose & Prasad (2003) the same groups were used.

this cross-sectional dependence; the most common is using clustered errors by country. The clustering of country errors is a technique also used by Grilli & Milesi-Ferretti (1995) and Rogoff, Wei, Ayhan Kose & Prasad (2006).<sup>3</sup>

Because a panel analysis is used and one where financial data is the main determinant, a subcategory was made to exclude the 2007 crisis, to exclude this disturbance. This subcategory uses data between 1986 and 2007, to eliminate the disturbing effect of the financial crisis of 2007, increased volatility enormously and decreases the dependency of the model. Because the effects of financial openness are very sensitive to shocks, a relatively stable time period is used, so the effect of financial openness on GDP growth can be adequately measured.

#### **4.1. Country groups**

Because there are important differences between countries it will give a more complete image if various groups of countries are distinguished in the data set. This means a number of groups has to be created of countries with similar financial characteristics. To do this the groups as are given by the IMF are used, since these seem to be the most comprehensive. In this list are 34 countries which are designated as developed or industrialized. Because all countries with population smaller than one million are eliminated a group of 22 industrialized countries is used.

For the remaining countries in our dataset, there are still important differences between the developing economies and as described by Prasad, Rogoff, Wei & Ayhan Kose (2003,2006) the best method is to divide these economies into two groups; More Financially Integrated (MFI) and the Less Financially Integrated (LFI) countries. To divide these countries into MFI and LFI countries, we use the sub groups as they are given in Prasad, Rogoff, Wei & Ayhan Kose (2003). The division into subgroups by Prasad, Rogoff, Wei & Ayhan Kose (2003) is as a result of MSCI Barra indices, which divides countries into developed, emerging and frontier markets. Countries with insufficient or unreliable data, and also economies that are highly dependent on fossil fuels (oil) where deleted because of the abnormal structure of their economies. Besides this, as in developed countries, countries with fewer than one million inhabitants are also deleted because of the abnormal structure of their economies.

#### **4.2. Data**

In this study the main data are the World Development Indicators (WDI) of the World Bank. These indicators are a good measure however this database had to be adapted to create the dataset needed for research into globalization of financial markets. This data set consists of over 1200 indicators of 209 countries, and from 1960 until 2010. Because the data set contains indicators of economic but also policy and education, it is ideal for this study.<sup>4</sup>

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<sup>3</sup> *Serial correlation is not an issue because the samples are independent across time*

<sup>4</sup> Various other sources of data were investigated, but for consistency and comparable results with earlier research the WDI provided the best data.

The variables needed to measure financial openness are described in the papers of Rogoff, Wei, Prasad & Ayhan Kose (2003, 2006) and in the paper by Edison, Levine, Ricci & Sløk (2002) and Lane & Milesi-Ferretti (2006) the various methods to measure financial openness are described and tested.

The variables that are looked at for the regression:

1. Real GDP per capita
2. Financial openness (3 different measures)
3. Human Capital
4. Inflation
5. Official Exchange rate
6. Private credit
7. Market capitalization
8. Current account balance
9. Stocks traded

All variables are effectively lagged by one year. For Real GDP per capita and Stocks Traded the log is used for interpretation issues as it reduces quantities to smaller scopes. In this way it is easier to compare the various variables and their outcomes. The reduced range of the variable makes the estimator less sensitive to outliers in the dependent or independent variables.

The use of the natural logarithm is also very useful to deal with unequal variation, for example a variable which is non linear. (Woolridge (2002)). The other variables are denoted as percentage of GDP. The variables are included since they have been shown to be important drivers of growth (Edison, Levine, Ricci & Sløk (2002)). Also the exchange rate, domestic lending, transparency and corruption are measures for the threshold which is observed in various earlier studies. Table 7 in the Appendix shows the summary statistics of all variables.

#### **4.2.1. Dependent variable: GDP growth**

The dependent variable is the Gross Domestic Product (GDP) data in current US \$ per capita. To see if the GDP is influenced by the various independent variables lagged variables are used. This creates an independent variable that is not influenced by earlier events.

#### **4.2.2. Independent variables:**

##### **Financial openness**

From earlier research can be concluded that there are a few methods to detect financial liberalization. Edison, Levine, Ricci & Sløk (2002) show that the total value of domestic stocks traded in current US \$ can be a good measure of financial openness, however in order for this to be a good predictor of GDP growth, the natural logarithm (Ln) needs to be used. This reduces the volatility of the absolute numbers and gives a better prediction.

Besides this, there are 2 other ways to measure financial liberalization. The first measure is to look into actual financial flows. However this brings along the question whether to use gross or net financial flows. The use of gross financial flows appears to be less volatile relative to net financial flows and creates a more sensible image of the economy (Rogoff, Wei, Prasad & Ayhan Kose (2006)).

However this data is difficult to find and the net financial flows despite the higher volatility give a good image of financial openness and its impact on economic growth.

The second measure looks into the financial flows, with a specific look into international capital stocks. These international stocks are a good indicator of the international liberalization. The higher the amount of foreign stocks, financial and non financial, exist in an economy, the more open an economy is considered to be. This is measured by estimates of external debt and liabilities, measured in accordance with the IMF guidelines, also known as International Investment Position (IIP). This measure combined with the Balance of Payments (Bop) gives a dataset from which we can create our financial openness measure. This data is combined to create a value for external assets and liabilities as a ratio to GDP. This ratio gives the financial integration (Lane & Milesi-Ferretti, 2006).

**Financial openness:** This variable is constructed by adding external debt (total, DOD US \$) with official reserves excluding gold (in current US \$) and Private capital flows (current US \$) divided by GDP (current US \$) to give this ratio.

**Liberalization:** This variable is created by adding official reserves excluding gold (in current US \$) and Private capital flows (current US \$) divided by GDP (current US \$) to give this ratio. We create this measure, because of the lack of data about industrialized countries' external debt.

**Private capital flows:** This variable consists of private capital flows as a percentage of GDP. This measure is the net financial flows, which though they are more volatile should be a good predictor of financial openness.

Private capital flows are composed of Foreign Direct Investment (FDI) flows and Portfolio investment. Because of limited observations of developed economies on their external debt and official reserves, the construction of the financial openness variable was not possible. This made it difficult to compare the performance of the developing economies, both MFI and LFI to developed economies.

As a result net financial capital flows are also used as measure of financial openness so comparison between the openness as it is found in developed economies and development of the economy.



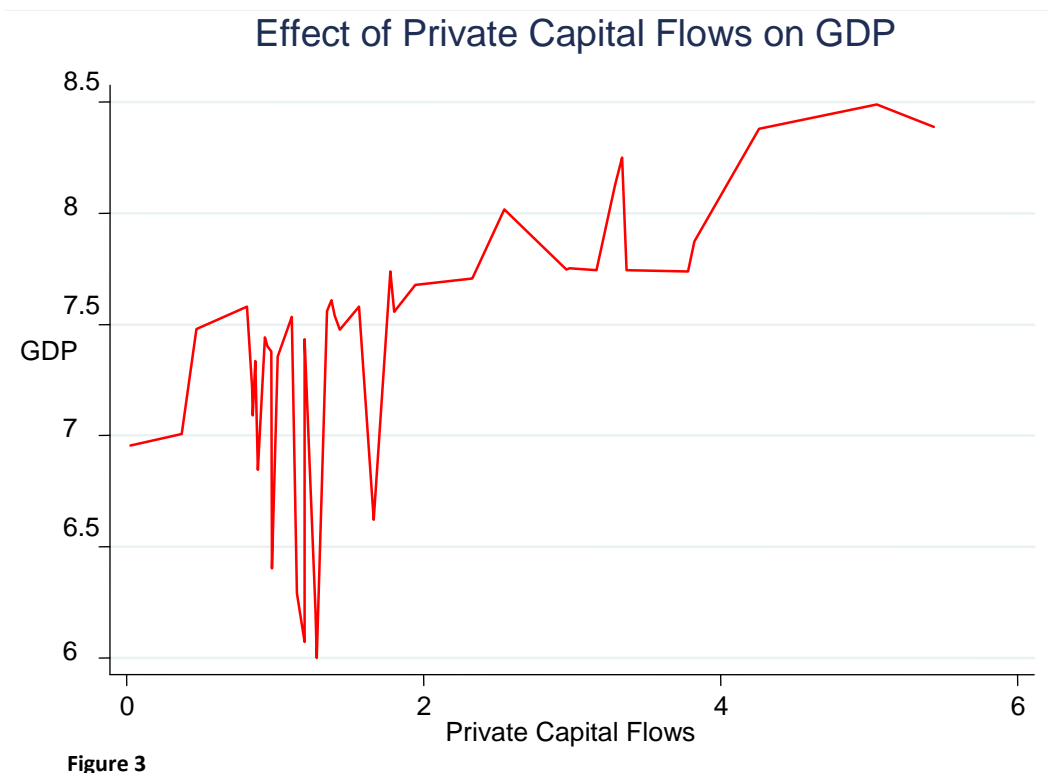


Figure 3 demonstrates the so called threshold effect; a number of countries are financially open however their GDP doesn't rise with the same amount as other economies with the same amount of openness. This is an indication of the "secondary" requirements for GDP growth. Another observation is that negative effects of Private Capital Flows occur when Private Capital Flows are between 1 and 2 percent of GDP.

### Human capital

Human Capital is constructed by using the gross enrolment ratio of the secondary education.

In previous studies there have been various other measures of human capital with the most common being duration of education. However because of lack of available data, the choice was made to select this gross enrolment of secondary education. Secondary education is probably the most important and the most used measure of human capital. Education attainment is also used by Borestein, De Gregorio, Lee (1998) to create their human capital variable.

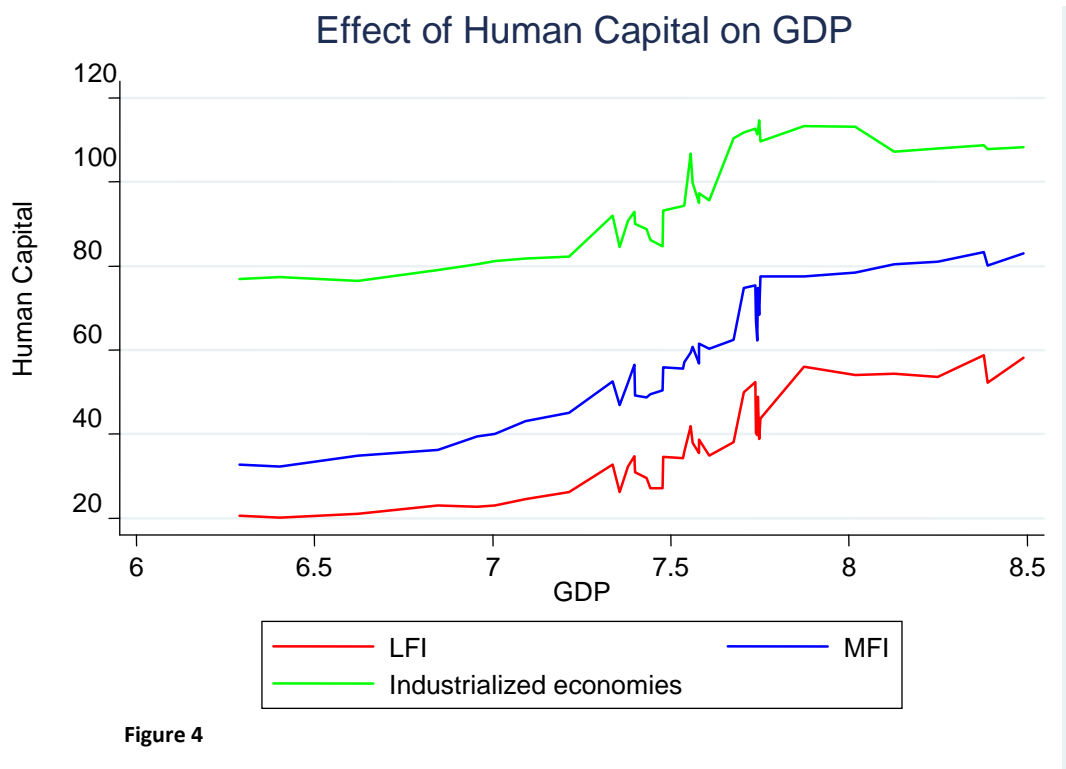


Figure 4

Figure 4 shows a positive relation between human capital and GDP growth.<sup>5</sup>

### Inflation

Inflation is used to control for increased amounts of capital as a result of inflation. Inflation can have an important effect on volatility and because it seems to decrease with an increasing level of financial openness. Low levels of inflation are important for GDP growth and low volatility of an economy. Consumer price inflation differences in annual percentages are used in this study, as it is the most comprehensive measure of inflation.

### Exchange Rate

Especially with respect to foreign assets and liabilities, changes in the exchange rate can have an enormous impact on the foreign capital stocks. This exchange rate also has a large influence on the GDP in current US dollars as it is calculated using the official exchange rate. For this we use the Official exchange rate local currency against US \$ with monthly averages used to calculate the annual average exchange rate.

### Private Credit

Private Credit is measured by dividing net credit to domestic firms in local currency by GDP in local currency. We control this variable so we can measure the true effect of financial globalization. This means that we can investigate the effect of portfolio investments and foreign direct investments on the domestic economy.

<sup>5</sup> We use the means of Human Capital and GDP for this graph

### **Market Capitalization**

Market Capitalization of stock markets is controlled for, as it has been proved in various articles that a higher market capitalization of stock markets leads to higher impact of financial liberalization. Market capitalization is measured as a ratio to GDP.

### **Stocks Traded**

Stocks Traded equals the LN of total value of stocks trade in current US \$. This variable is used to control for the size of stock markets.

### **4.2.3. Included and excluded groups**

A number of countries were omitted by Prasad, Rogoff, Wei and Ayhan Kose (2003) from their datasets.<sup>6</sup>

Possible outliers were also omitted by Prasad, Rogoff, Wei and Ayhan Kose (2003), such as economies with a high dependency on their oil production. Countries with fewer than 1 million inhabitants are excluded because of their limited influence into world economies and their higher vulnerability to external effects. Transition economies were also omitted, because their data is not representative of normal economic growth. The data from these economies can create a bias in the dataset and is omitted for this reason.

Economies with unreliable data or very low number of observations were also deleted.

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<sup>6</sup> Country list is included in the appendix

## 5. Results

The results of the various regressions show that the different measures of financial openness also give different results. Considering the model with a restricted dataset and the model with the unrestricted dataset, as the 2007 crisis affected the entire world and very possibly disrupted the outcome of this study. Therefore in this study one model uses data until 2009 and one subset using data between 1986 and 2007.

### 5.1. Financial Openness

Since the financial openness measure is not available the cross-section only consists of MFI and LFI economies. (Table 1 and 4 in the Appendix show the coefficients and their respective standard errors.) The most important variable, Financial Openness has, both for the restricted sample as for the full sample a highly significant negative effect on GDP growth. Because the measure Financial Openness is measured as a percentage of GDP, the coefficient indicates that if Financial Openness increases with 1 unit (1 percent increase) respect to GDP, the (GDP) per capita in the next year decreases with 0,549 (in the restricted sample) and 0,488 (in the full sample). This means a substantial decrease in absolute value of GDP as this is denoted as natural logarithm. A possible explanation of this effect might lie in the way in which this measure is constructed. As discussed in the Methodology chapter, the measure Financial Openness consists of foreign debt and official reserves combined with private capital. An increase in this stock data with 1 percent with respect to GDP can indicate that capital flows is moved from the economy towards for example official reserves. This capital is not used to invest in the economy and therefore, this effect might be observed. For MFI economies, the effect of financial integration has a negative effect on growth, both for the unrestricted sample (all years) as for the restricted sample (1986-2007). For LFI countries, there is a negative effect of financial openness on GDP growth which is highly significant; for MFI countries there is a negative effect however this was not significant. The effect of financial integration using this measure seems to be negative; however the value of the negative coefficient decreases in the restricted model. This is to be expected as the crisis of 2007 had a large negative impact on the economic situation in the world.

In the cross-section model with the restricted dataset, but also when the full dataset is used there is a positive but not significant effect of Human capital on GDP growth. Also for the MFI and LFI economies, there is no significantly positive effect of Human Capital on GDP both in the restricted and the unrestricted sample. This indicates that the absorption of technology as a result of higher Human Capital values does not significantly increases GDP. For example, when considering MFI economies if Human Capital increases with 1 unit, which effectively means that the gross enrollment rate of the secondary education increases with 1 percent, the GDP per capita increases with around 0,00407 (in the restricted sample) and 0,00418 (unrestricted sample).

The amount of Stocks Traded has a positive effect on GDP growth at a 5 percent level, in both samples. To put this effect in the correct perspective, this means that if the Ln of the value of the amount of Stocks Traded increases by 1 unit, the GDP in the economies will on average rise in the next year by 0,0389 (in the restricted sample) or 0,0469 (in the full sample). This might seem to be a small effect; however, when regarding GDP per capita, this makes a large difference. That the total value of stocks traded seems to have a positive effect on GDP growth can possibly be explained by

the fact that increase in demand (for example from foreign economies) raises stock values. This raise in stock values, also increases the value of the listed companies. This raise in total value of the listed companies gives these companies the ability to attract capital at a lower rate, since their assets hold a higher value and the risk is decreased. This capital can be used to invest, which benefits the economy. The value of Stocks traded also has a positive effect on GDP growth for LFI and MFI economies however it is only significant for MFI economies at a 10 percent level. These effects are found in both the restricted as in the unrestricted sample.

The exchange rates have negative effects on the GDP growth; however this effect is not significant and very small. The negative effect is expected as GDP is nominated in US dollars and the variable Exchange rates measures Local Currency Unit (LCU) per US dollars. A cheap LCU is beneficial for export, however it decreases GDP measured in US dollars. The observed effects indicates that if the Local Currency Unit increases with 1 unit compared with the US dollar, the GDP in this economy will decrease with  $8,41e-06$  (in the restricted sample) or  $8,03e-06$  (in the full sample). This again might seem like a small amount, however since this is in Ln of the GDP per capita, this will be very noticeable for the consumers. The effect of exchange rates on GDP is negative for both MFI and LFI economies, in both the restricted as the unrestricted model. However this negative effect is only significant at a 5 percent level for LFI economies, both in the restricted and the unrestricted model.

Inflation seems to have a positive effect on GDP growth in the cross-sectional analysis; however this effect is also very small and not significant. The relative large size of the standard error indicates a high volatility in the effect of the Inflation on GDP. For the LFI and MFI economies there is a contradiction in the effect of Inflation on GDP; it has a positive effect on MFI economies, but a significant negative effect on LFI economies. When we look at for example India, they experience very high growth; this high growth creates a surge of capital inflows. This high inflow leads to high inflation. This can indicate a link between inflation and GDP growth; however the belief is that it is more a result than a trigger of GDP growth for MFI economies. The more likely explanation is that the number of forward periods for GDP (1) is too low to see the real effect of inflation. For LFI economies, the connection between GDP and Inflation is more expected. Increased Inflation has a negative effect on GDP, because money loses its value, therefore companies can invest less with the same amount of money. Another possible explanation is based on research by Sarel (1996) who shows that there is a certain amount of non-linearity in the relation between inflation and GDP growth. He explains that inflation below 8 percent doesn't have any effect on GDP growth, maybe even slightly positive and inflation above 8 percent decreases GDP growth.

The coefficients indicate that, for example for LFI economies, if Inflation increase by one unit, the GDP per capita will decrease with  $0,00361$  (in the restricted sample) and  $0,00323$  (in the unrestricted sample). This value seems to be small, however because of the Ln, the effect of this coefficient is larger than it appears.

Domestic credit has a positive effect on GDP in the cross-sectional analysis; however this effect is not significant in both samples. The same positive effect holds for MFI economies; however for LFI economies the effect of Domestic Credit is negative. Even though the effects are not significant, the coefficients and their standard errors can still help to understand the influence of Domestic Credit. The large standard errors compared to the coefficients indicate a high volatility, which is an indication that the quality of the coefficients is not high. The negative effect of Domestic credit

seems to indicate that the amount of credit lend to private sector, non-financial public sector and other accounts do not yield positive returns the next year. However the positive effect of MFI economies for example indicates that if the net domestic credit as percentage of GDP increases by 1 percent, the GDP per capita should increase with 0,170 (restricted sample) and 0,164 (unrestricted sample) in the next year. Considering that the dependent variable is presented as a natural log (Ln) and that it is measured per capita, it is a very high coefficient.

Market Capitalization has a positive effect on GDP per capita in the Cross sectional analysis. This effect is however not significant, in the restricted sample. However for the unrestricted sample, the effect is significant at a 10 percent level. For both MFI and LFI economies Market capitalization has a very small positive effect in both the restricted and the unrestricted sample, however this effect is also not significant. Due to the relative large size of the standard errors compared to the coefficients, the conclusion can be made that the coefficients are not good estimators (Woodridge (2002)). This effect can also be related to higher stock value as a result of financial integration as Market capitalization is calculated as value of stocks times' number of outstanding stocks. The coefficients indicate, that if the Market Capitalization as a percentage of GDP increases with 1 percent, the GDP per capita increases with 0,00113 (restricted sample) and 0,00167 (unrestricted sample).

In the cross-sectional analysis, Current account balance has a positive effect on GDP per capita, however this effect is not significant in both the restricted and the unrestricted sample. The Standard errors are large compared to the coefficient; this is an indicator that the coefficients are of a low quality. LFI economies find positive effects of Current Account Balance; however for MFI economies this effect is negative. The positive effect is not surprising, with the capital from exported goods and services flowing towards the domestic economy. The coefficients indicate that if the Current Account Balance (as a percentage of GDP) increases with 1 percent, the GDP per capita will increase the next year with 0,00377 for LFI economies (restricted sample). This means that if the income with respect to the GDP increases with one percent, the GDP will benefit from this in the future.

All of these variables lead us to the conclusion that if there is a positive effect to be found as a result of financial openness, the effect is very limited and conditional and is not to be found using this measure of financial integration.

## 5.2. Private capital flows

Private capital flows, especially the net private capital flows are considered to be more volatile. This volatility makes private capital flow data less accurate; however this might be the best measure in this case, since the data on these flows are available for all countries, and the measure is still a good measure despite of the downsides.<sup>7</sup>

Cross-sectional data shows that when the measure private capital flows to determine financial integration, this has a positive effect on the GDP per capita in the following year. If the amount of private capital increases by 1 percent, the GDP per capita is expected to increase by 0,00381 in the restricted sample and by 0,00373 in the unrestricted sample. Financial integration has also has a positive effect on GDP for MFI and Industrialized economies. For LFI economies, this effect is negative, however, just like the positive effects, this is not significant. In the unrestricted sample, positive effects are found for all groups however, none of these effects are significant.

This outcome indicates that, LFI economies seem to have benefitted from the financial crisis. This outcome is not expected, however the explanation may lie in the fact that the LFI economies are not fully open to financial flows and therefore feel less negative effects of this financial crisis. And as a result have been able to improve their position, as a result of this. There might also be a number of other factors that can explain the difference, for example the quality of foreign capital.

Furthermore, Human capital has a negative effect in the cross-sectional analysis however, in the unrestricted sample there is a positive effect. The standard errors of the human capital variables in this cross-sectional analysis are relatively large, which indicates a low quality of the coefficients. The effects of Human Capital on GDP growth are negative for all groups in the restricted sample; however this effect is not significant. In the unrestricted sample, the effect of Human capital becomes positive for LFI and MFI economies, for Industrialized economies this effect stays negative, but all these effects are not significant. Looking at the unrestricted sample, the positive effect for LFI and MFI economies shows, since this is a measure of absorptive capacity, that the Human Capital variable is of importance as they need to absorb technological spill-overs and to properly measure the effect of Human capital on Industrialized economies a different measure might be necessary. The measure is now based on secondary education, where for the Industrialized economies a tertiary education measure could be more in place. The coefficients for MFI economies indicate that if Human Capital increases with 1 percent, the GDP per capita increases with around 0,00130 for the unrestricted sample. For the restricted sample, the GDP per capita decreases with 0,000201. The standard errors for all coefficients are relatively large, which indicates a low quality for the estimators.

For value of stocks traded, there is a positive effect on GDP for the cross-sectional analysis, this effect is significant at a 1 percent level. For all country groups in both samples there is a positive effect but this effect is only significant for MFI economies at a 10 percent level. As discussed earlier, the most obvious reason that Stocks traded has a positive effect on GDP indicates that increased trades in stocks, increases stock value. This increased stock value means that companies have the capital to invest in new technologies or expand, which boosts GDP growth. This can also be

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<sup>7</sup> All the relevant coefficients and their standard errors can be found in the appendix, table 3 and 6

attributed to financial integration, when financial markets open up, there will be more trade in stocks, leading to higher demand of stocks, which raises the value. These positive coefficients indicate that if the value of stocks traded increase with 1 unit, the GDP per capita increases with 0,0508 in the restricted sample for the cross-sectional analysis.

The effect of exchange rates is negative in the cross-country analysis, however this effect is not significant in either sample. The relative high standard compared to the coefficients indicate a low quality of the estimator. All country groups in both samples find negative effects; however the negative effect is not significant for MFI countries, and on a 10 percent level for LFI economies. For Industrialized economies it is even significant on a 1 percent level in both the unrestricted model and the restricted model. The negative effect is expected as GDP is nominated in US dollars and the variable Exchange rates measures Local Currency Unit (LCU) per US dollars. A cheap LCU is beneficial for export, however it decreases GDP measured in US dollars, apparently the measure of GDP conversion is higher than the benefits of relative cheap production.

Inflation has a positive effect in the cross-sectional analysis, however these effects are not significant. Inflation has also a negative effect on LFI economies, but Inflation does not seem to have a significant effect in this sample for any of the other country groups in either sample. The effects observed are positive for MFI and Industrialized economies and negative for LFI economies. As discussed before, the difference in positive and negative effects, despite them both not being significant may lay in the number of forwards use for GDP (effectively lagging all variables) or another explanation might be found based on the research of Sarel (1996).

Domestic credit has negative effects in the cross-sectional analysis; however these effects are not significant. There are relatively high standard errors which indicate a low quality of the estimator. For both LFI and MFI economies, Domestic Credit has negative effects in the restricted and the unrestricted sample. This negative effect is only significant for LFI economies in the unrestricted model at a 10 percent level. For industrialized economies however, there is a positive effect, both in the restricted and the unrestricted model. As discussed before this may indicate there are no positive returns on lending/investment and this can be as a result of various factors. However the fact that Domestic credit has a positive effect in Industrialized countries indicates that net credit yields higher returns. This could be an indication of more strict policy for lending and borrowing, which leads to higher quality of lenders/borrowers. The coefficient here indicates, that if Domestic Credit increase with 1 percent, the GDP per capita decreases with 0,0581 for the cross-sectional analysis (unrestricted sample). This decrease is a quite large as the GDP per capita is denoted as a natural logarithm.

In the cross-sectional analysis, there is a negative effect of Market Capitalization on the GDP per capita in the restricted sample. However in the unrestricted sample there is a positive effect of Market Capitalization on the GDP per capita. Both of these effects are not significant, and the standard errors are relatively large compared to the coefficients. As discussed before, this is an indication for poor quality of the estimators. For Market Capitalization we find positive effects for all country groups in the unrestricted model, with only a significant effect for LFI economies at 5 percent level. In the restricted model, there is a negative effect of Market Capitalization on GDP for MFI and Industrialized economies. For LFI economies, there is a positive effect, and this is significant



at a 10 percent level. The positive effect of LFI economies indicates that if Market capitalization increases by 1 percent, the GDP per capita increases by 0,0025 in the restricted sample and 0,00240 in the unrestricted sample.

Current Account Balance has a negative effect on the GDP per capita in the restricted cross-sectional analysis. However in the unrestricted sample there is a positive effect. Both these observed effects are not significant and both have relatively high standard errors. For MFI and Industrialized economies Current Account Balance has a negative effect on the GDP per capita using the restricted sample. There is a positive effect on LFI economies, both in the restricted and the unrestricted sample, but the effect is only significant at 10 percent level in the unrestricted sample. Current Account Balance also has a positive effect on MFI economies in the unrestricted sample; however this effect is not significant. The effect on the GDP of Industrialized economies stays negative and is in both samples not significant.

### **5.3. Liberalization**

Regarding the measure of financial openness named Liberalization, there is a different pattern. The effects of financial openness are far more positive compared to measuring financial openness with the other variables. There are positive effects for the cross-sectional analysis and all country groups except Industrialized economies; In the unrestricted sample, there are even larger positive effect for MFI economies, but all these effects are not significant. In the cross-sectional analysis the coefficients indicate that if the Liberalization measure of financial integration increases by 1 unit, the GDP per capita will increase next year with 0,409 in the restricted dataset and 0,504 when the unrestricted dataset is used. Since Liberalization consists of 2 variables, this means that either private capital flows or the official reserves need to increase by 1 percent before the described effect takes place.<sup>8</sup>

Regarding the other variables, there is a negative effect of Human capital in the cross-sectional analysis when using the restricted dataset. When the unrestricted dataset is used, a positive effect is found. Both these effects of Human Capital on GDP per capita are not significant and have high standard errors. For both LFI and Industrialized economies, a negative effect is observed when the restricted dataset is used. There is a positive effect of Human Capital on GDP in MFI economies, but this effect is also not significant. when the unrestricted sample is used the same effects can be observed.

For Stocks Traded, positive effects are found in the cross-sectional analysis in both the restricted and the unrestricted sample. These positive effects of Stocks Traded on the GDP per capita are significant at a 1 percent level. For all country groups both in the restricted as in the unrestricted model positive effects of Stocks Traded are observed. However, where the effects are significant at 10 percent level for MFI economies in the restricted dataset, in the unrestricted dataset this effect even holds at 5 percent level. In the restricted , the positive effect for LFI economies even holds at a 1 percent significance level.

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<sup>8</sup> Coefficients and standard errors relevant for this measure can be found in appendix tables 2 and 5

Looking at exchange rates, which are a large influence on foreign capital stocks, there is a significant negative effect according to the cross-sectional analysis. Both in for the restricted as for the unrestricted dataset these effects are not significant. For LFI and Industrialized economies there is a negative effect in the restricted dataset, this effect holds for LFI economies at 5 percent level and for Industrialized economies even at a 1 percent level. The negative effects are also present when the unrestricted sample is used, however the significance level of LFI economies decreases to a 10 percent level.

Inflation has a positive effect on GDP per capita in the cross-sectional analysis, but this effect is not significant. For MFI and Industrialized economies there are positive effects of Inflation on GDP per capita in the restricted and the unrestricted dataset; however there is also a negative effect on GDP in LFI economies. The effects on the MFI and Industrialized economies are not significant, the effect on the LFI economies are significant at 10 percent level but only when the restricted sample is used.

Domestic credit has negative effects on GDP per capita in the cross-sectional analysis, these effects are not significant. These negative effects of Domestic credit are also observed for LFI and MFI economies. However these effects are only significant for LFI economies and at a 5 percent level in the restricted dataset, in the unrestricted dataset there are no significant effects. Positive effects for Industrialized economies where found in both in the restricted as in the unrestricted sample. As discussed before these effects can be the result of various effects, however, this apparent low return over a year can be caused by even higher credits to the market than the return required, but there are many possible reasons. It could also affect the foreign investors, who observe this information and decide to take on investments with a shorter maturity. In the cross-sectional analysis the coefficients indicate that if Domestic Credit increases with 1 percent than GDP per capita decreases with 0,0180 when the restricted dataset is used and decreases with 0,0313 when the unrestricted dataset is used.

The Market Capitalization has a negative effect in the cross-sectional analysis in the restricted dataset, when the unrestricted dataset is used there is a very small positive effect. Both these effects are not significant and show high standard errors. MFI and Industrialized economies also experience negative effects, but in both the restricted and the unrestricted dataset, this effect is not significant. For LFI economies the effect of Market Capitalization is positive both in the restricted and in the unrestricted dataset at a 5 percent level. These effects are contributed to the values of the stocks, which kept growing in LFI economies.

In the cross-sectional analysis Current Account Balance has a negative effect on the GDP per capita when the restricted dataset is used. When the unrestricted dataset is used, there are positive effects to be observed. Both these effects are not significant and display relatively high standard errors. Current Account Balance has a negative effect on MFI and Industrialized economies both in the restricted as in the unrestricted dataset. For LFI economies there is a positive effect; however only in the unrestricted dataset does this effect hold at a 5 percent level. The effects of a positive Current account balance are expected to be positive as we have discussed before.

## 5.4. Conclusions

Looking at the various measures and taken into account that Financial Openness should be the best measure of financial openness, the conclusion can be made that financial integration does not provide growth for MFI economies. When the other measure of financial integration is used, Private Capital Flows, MFI economies seem to benefit from financial globalization. Private Capital Flows, due to the vulnerability to volatility it is also a very good measure of financial globalization. This second measure contradicts what is observed in the model with Financial openness, this indicates that if there are positive effects to be found, the choice for measure and method of constructing the model can be fundamental for the outcome.

Considering LFI economies and the effects of financial integration on these economies the evidence is also contradictory. When using the measure Financial openness, which is the best measure there is a negative effect. However if the measure Private capital flows is used, more prone to volatility, there is a positive effect. This result shows how delicate financial integration is, if two good measures of financial integration yield opposing evidence.

When the measure Liberalization is used to measure financial globalization, there are positive effects for both MFI and LFI economies. The effect of financial globalization is small and very conditional; however in earlier research evidence has been found that other variables, such as corruption, strength of legal rights is a large determinant for the positive effect of financial integration. This data was not available to us, so there was no possibility to test the model for differences.

## **6. Concluding remarks**

As discussed before, the model yields mixed outcomes for financial integration; however this can be contributed to conditional variables for financial integration to take positive effect. These conditional variables, that need to attain a certain “threshold” value, could not be taken into account for which data was not available to us.

Therefore the conclusion has to be made that further research is necessary, with a strong focus on these “threshold” variables. Further research is urged to examine various country groups, since this is of great importance to the outcome of the analysis of the effects of financial integration. Besides this the use of a solid measure of openness is urged.

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## **Appendix:**

Countries are divided in three groups; the first is More Financially Integrated (MFI) countries:

### **Industrialized Economies**

The 22 advanced industrial economies in our sample are Australia (AUS), Austria (AUT), Belgium (BEL), Canada (CAN), Denmark (DNK), Finland (FIN), France (FRA), Germany (DEU), Greece (GRC), Ireland (IRL), Israel (ISR), Italy (ITA), Japan (JPN), the Netherlands (NLD), New Zealand (NZL), Norway (NOR), Portugal (PRT), Spain (ESP), Sweden (SWE), Switzerland (CHE), the United Kingdom (GBR), and the United States (USA).

### **More Financially Integrated Economies**

This group includes 18 countries—Argentina (ARG), Brazil (BRA), Chile (CHL), China (CHN), Colombia (COL), Egypt (EGY), India (IND), Indonesia (IDN), the Republic of Korea (KOR), Malaysia (MYS), Mexico (MEX), Peru (PER), the Philippines (PHL), Singapore (SGP), South Africa (ZAF), Thailand (THA), Turkey (TUR), and Venezuela (VEN).

### **Less Financially Integrated Economies**

This group has 31 countries—Pakistan (PAK), Algeria (DZA), Bangladesh (BGD), Bolivia (BOL), Cameroon (CMR), Costa Rica (CRI), the Dominican Republic (DOM), Ecuador (ECU), El Salvador (SLV), Fiji (FJI), Ghana (GHA), Guatemala (GTM), Honduras (HND), Iran (IRN), Jamaica (JAM), Kenya (KEN), Malawi (MWI), Mauritius (MUS), Nepal (NPL), Niger (NER), Papua New Guinea (PNG), Paraguay (PRY), Senegal (SEN), Sri Lanka (LKA), Tanzania (TZA), Togo (TGO), Trinidad and Tobago (TTO), Tunisia (TUN), Uruguay (URY), Zambia (ZMB), and Zimbabwe (ZWE).



## Restricted model

**Table 1**

Restricted Sample	>1986	<2007		
1986-2007	(Total)	(MFI)	(LFI)	
VARIABLES	Ln (GDP)	Ln (GDP)	Ln (GDP)	
Human Capital	0.00184 (0.00262)	0.00407 (0.00369)	0.000349 (0.00294)	
Ln (Stocks Traded)	0.0389** (0.0158)	0.0524* (0.0279)	0.0154 (0.0114)	
Official Exchange Rate	-8.41e-06 (1.33e-05)	-1.51e-06 (1.23e-05)	-4.42e-05** (1.88e-05)	
Inflation	8.04e-06 (9.20e-06)	1.89e-05 (1.33e-05)	-0.00361** (0.00157)	
Domestic Credit	0.151 (0.161)	0.170 (0.214)	-0.0667 (0.170)	
Market Capitalization	0.00113 (0.000752)	0.000538 (0.000730)	0.000446 (0.00109)	
Current Account Balance	0.00170 (0.00331)	-0.00283 (0.00591)	0.00377 (0.00371)	
Financial Openness	-0.549*** (0.136)	-0.439 (0.266)	-0.653*** (0.0882)	
Constant	6.376*** (0.369)	5.986*** (0.657)	6.955*** (0.253)	
Observations	400	225	175	
R-squared	0.754	0.756	0.842	
Number of country_id	34	15	19	

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2**

Restricted Sample &gt;1986 &lt;2007

1986-2007 VARIABLES	(Total) Ln (GDP)	(MFI) Ln (GDP)	(LFI) Ln (GDP)	(Industrialized) Ln (GDP)
Human Capital	-0.000745 (0.00179)	0.000614 (0.00432)	-6.56e-05 (0.00291)	-0.00149 (0.00143)
Ln (Stocks Traded)	0.0495*** (0.0180)	0.0523* (0.0288)	0.0365*** (0.0105)	0.0341 (0.0240)
Official Exchange Rate	-1.45e-05 (1.44e-05)	-7.75e-06 (1.27e-05)	-4.65e-05** (2.12e-05)	-0.000333*** (8.39e-05)
Inflation	9.14e-06 (1.89e-05)	2.67e-05 (2.48e-05)	-0.00544* (0.00268)	0.00262 (0.00700)
Domestic Credit	-0.0180 (0.0793)	-0.0901 (0.165)	-0.383** (0.176)	0.0938 (0.104)
Market Capitalization	-0.000333 (0.000515)	-0.000623 (0.000990)	0.00239** (0.00107)	-0.000404 (0.000551)
Current Account Balance	-0.00280 (0.00309)	-0.00934 (0.00680)	0.00409 (0.00278)	-0.00932 (0.00560)
Liberalization	0.409 (0.277)	0.581 (0.571)	0.0540 (0.380)	-0.272 (0.358)
Constant	7.097*** (0.428)	6.124*** (0.774)	6.428*** (0.192)	8.981*** (0.652)
Observations	715	246	188	281
R-squared	0.703	0.733	0.760	0.791
Number of country_id	57	16	20	21

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 3**

Restricted Sample &gt;1986 &lt;2007

1986-2007 VARIABLES	(Total) LFGDP	(MFI) LFGDP	(LFI) LFGDP	(Industrialized) LFGDP
Human Capitalization	-0.000932 (0.00178)	-0.000201 (0.00389)	-0.000391 (0.00321)	-0.00135 (0.00150)
Ln (Stocks Traded)	0.0508*** (0.0182)	0.0593 (0.0339)	0.0324 (0.0254)	0.0368 (0.0226)
Official Exchange Rate	-1.43e-05 (1.43e-05)	-9.28e-06 (1.21e-05)	-4.91e-05* (2.45e-05)	-0.000381*** (8.34e-05)
Inflation	4.43e-06 (1.80e-05)	2.23e-05 (2.50e-05)	-0.00457 (0.00329)	0.00366 (0.00651)
Domestic Credit	-0.0291 (0.0785)	-0.0734 (0.165)	-0.384 (0.234)	0.116 (0.128)
Market Capitalization	-0.000309 (0.000544)	-0.000347 (0.000947)	0.00225* (0.00119)	-0.000265 (0.000578)
Current Account Balance	-0.00162 (0.00273)	-0.00652 (0.00522)	0.00428 (0.00367)	-0.00630 (0.00605)
Private Capital Flows	0.00381 (0.00334)	0.00397 (0.00869)	-0.00269 (0.0123)	0.00194 (0.00277)
Constant	7.103*** (0.424)	6.052*** (0.840)	6.500*** (0.349)	8.853*** (0.630)
Observations	722	246	195	281
R-squared	0.700	0.728	0.761	0.789
Number of country_id	58	16	21	21

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## Unrestricted sample

**Table 4**

1960-2009

VARIABLES	(Total) Ln (GDP)	(MFI) Ln (GDP)	(LFI) Ln (GDP)
Human Capital	0.00249 (0.00259)	0.00418 (0.00364)	0.000189 (0.00281)
Ln (Stocks Traded)	0.0469** (0.0200)	0.0716* (0.0359)	0.0137 (0.0120)
Official Exchange Rate	-8.03e-06 (1.29e-05)	-4.88e-06 (1.26e-05)	-4.58e-05** (1.89e-05)
Inflation	8.30e-06 (9.84e-06)	2.22e-05 (1.45e-05)	-0.00323* (0.00174)
Domestic Credit	0.127 (0.143)	0.164 (0.187)	-0.0656 (0.150)
Market Capitalization	0.00167* (0.000895)	0.000973 (0.000803)	0.000675 (0.00100)
Current Account Balance	0.00382 (0.00401)	0.000675 (0.00665)	0.00245 (0.00308)
Financial Openness	-0.488*** (0.124)	-0.394 (0.266)	-0.577*** (0.0917)
Constant	6.171*** (0.472)	5.564*** (0.868)	6.920*** (0.249)
Observations	439	250	189
R-squared	0.807	0.815	0.875
Number of country_id	34	15	19

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5**

1960-2009

VARIABLES	(Total) Ln (GDP)	(MFI) Ln (GDP)	(LFI) Ln (GDP)	(Industrialized) Ln (GDP)
Human Capital	0.000989 (0.00198)	0.00205 (0.00410)	0.00119 (0.00288)	-0.00148 (0.00134)
Ln (Stocks Traded)	0.0581*** (0.0191)	0.0715** (0.0326)	0.0318 (0.0217)	0.0330 (0.0257)
Official Exchange Rate	-8.18e-06 (1.46e-05)	-5.31e-06 (1.27e-05)	-5.06e-05* (2.47e-05)	-0.000316*** (8.41e-05)
Inflation	8.73e-06 (1.86e-05)	3.00e-05 (2.48e-05)	-0.00502 (0.00358)	0.000539 (0.00744)
Domestic Credit	-0.0313 (0.0798)	-0.118 (0.156)	-0.404 (0.256)	0.116 (0.0959)
Market Capitalization	1.75e-05 (0.000523)	-0.000315 (0.000939)	0.00267** (0.00119)	-0.000221 (0.000542)
Current Account Balance	0.000735 (0.00335)	-0.00535 (0.00675)	0.00690** (0.00279)	-0.0106* (0.00519)
Liberalization	0.504 (0.318)	0.653 (0.592)	0.0315 (0.525)	-0.387 (0.340)
Constant	6.790*** (0.482)	5.660*** (0.867)	6.463*** (0.304)	8.993*** (0.689)
Observations	776	273	204	299
R-squared	0.761	0.798	0.820	0.826
Number of country_id	57	16	20	21

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 6** (1960-2009)

VARIABLES	(Total) Ln (GDP)	(MFI) Ln (GDP)	(LFI) Ln (GDP)	(Industrialized) Ln (GDP)
Human Capitalization	0.00107 (0.00203)	0.00130 (0.00350)	0.00162 (0.00305)	-0.00125 (0.00140)
Ln (Stocks Traded)	0.0607*** (0.0201)	0.0811* (0.0400)	0.0313 (0.0236)	0.0342 (0.0250)
Official Exchange Rate	-9.23e-06 (1.44e-05)	-8.69e-06 (1.22e-05)	-5.05e-05* (2.62e-05)	-0.000345*** (8.10e-05)
Inflation	2.27e-06 (1.72e-05)	2.45e-05 (2.45e-05)	-0.00505 (0.00355)	0.00192 (0.00700)
Domestic Credit	-0.0581 (0.0792)	-0.108 (0.151)	-0.456* (0.244)	0.135 (0.120)
Market Capitalization	4.35e-05 (0.000572)	8.97e-05 (0.000969)	0.00240** (0.00114)	5.63e-06 (0.000614)
Current Account Balance	0.00191 (0.00347)	-0.00166 (0.00630)	0.00598* (0.00306)	-0.00873 (0.00553)
Private Capital Flows	0.00373 (0.00321)	0.00340 (0.00817)	0.000251 (0.0118)	8.00e-05 (0.00214)
Constant	6.766*** (0.494)	5.541*** (0.981)	6.470*** (0.360)	8.880*** (0.674)
Observations	785	273	213	299
R-squared	0.756	0.792	0.817	0.822
Number of country_id	58	16	21	21

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 7**

Variable	Obs	Mean	Std. Dev.	Min	Max
Inflation	4700	43.70969	569.4732	-100	24411.03
Official Exchange Rate	5686	1181337	8.91E+07	0	6.72E+09
Ln (Stocks Traded)	1932	21.88884	3.971365	10.27417	31.47553
Human Capital	4250	57.96987	34.2582	0	161.7809
Domestic Credit	5078	0.7412231	17.51918	0.7299423	1245.284
Current Account Balance	4080	-2.828323	9.637839	-240.4958	56.69755
Market Capitalization	1859	46.51161	63.13475	0.0041374	1088.282
Financial Openness	2689	0.7965759	0.6476811	0.0429731	10.75567
Liberalization	3978	0.1334194	0.1540293	0.3624345	1.538142
Private Capitalization	4064	1.601687	4.884274	-38.85031	46.8288
LN (GDP)	5483	7.296133	1.594491	3.888111	11.45707