LUISS Guido Carli
LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI

Department of Economics and Finance

Chair of Macroeconomics

Liberalization and Foreign Direct Investments: How do they affect growth?

Supervisor
Prof. Pietro Reichlin

Candidate
Elena Serangeli
186341

ACADEMIC YEAR 2015-2016

Table of Contents

List of Tables

List of Figures

List of Equations

List of Abbreviations

EME Emerging Market Economies
FDI Foreign Direct Investments
GFCF Gross Fixed Capital Formation
FAI Fixed Asset Investment
NBS National Bureau of Statistics
OECD Organization for Economic Co-operation and Development
SOE State Owned Enterprises
GDP Gross Domestic Product
FIE Foreign Invested Enterprise
CEIC Census and Economic Information Center
TVE Township and Village Enterprises
SASAC State owned Assets Supervision and Administration Commission
FE Fixed Effect
RE Random Effect
TFP Total Factor Production
FO Financial Openness
WDI World Development Indicators

1.Introduction

China's incredible growth has been one of the most important topics of interest for the economists all over the world. Since the reform of the year 1978, the country was transformed from a centrally-planned to a market-oriented economy, experiencing a rapid increase in economic and social wealth. The average GDP growth was indeed 10 percent per year[1], and the country managed to lift 800 million of citizens out of poverty until 2016[2]. As a result of that, the role of China has become increasingly important in the global economy. Fifty years ago nobody would have seen the Chinese nation as the important investor that it is today. As it is well known, for instance, the country bought some of the most important Italian firms, as Pirelli, acquired with a deal worth 7.9 billion of dollars. According to recent data, China has invested a total of 23 billion of dollars only in the European zone[3]. However, it is sufficient to walk from the center to the periphery of one of the main Chinese cities to notice the presence of economic and social imbalances. What led China to this incredible growth? Was it due to the opening of their capital account? Or are there other factors that can influence growth?

This bachelor thesis has the objective of investigating the relationship between capital account liberalization, foreign trade, and economic growth. It does so by first dealing with the explanation of the main factors that generate growth in a general country, and then, thanks to the theoretical and empirical models examined in the first four chapters, addresses the case of China.

Therefore, the first chapter explains the Solow model, which in particular points out the importance of capital and labor for the development of a country. It assumes decreasing marginal returns of capital, which is to say that in a country that already has a high level of capital, increasing it by one unit does not increase output as much as it would increase in a country with a low level of capital.

Moreover, the model demonstrates that the higher the saving rate, the higher the investment rate, so the higher the capital stock and the total production of a country; in other words, the more a country saves, the more it will be productive, and the more it will grow over the decades.

But is this theory demonstrated in practice? The aim of numerous studies has been to find a justifiable answer to this difficult question. In particular it has been pointed out that the degree by which savings affect growth depends on the distance of a country from the general

---

1 World Bank (2016). China Overview. Retrieved from: http://www.worldbank.org/en/country/china/overview#1.

2 World Bank (2016). China Overview. Retrieved from: http://www.worldbank.org/en/country/china/overview#1.

3 Gabriel Wildau, Emily Cadman, Yuan Yang and Luke Kavanagh, (2016). *The Chinese economy at a glance,* Financial Times. Retrieved from: https://ig.ft.com/sites/numbers/economies/china.

technology frontier, defined as the general level of technology in the industrialized world. A theory relating the technology level of a country and the importance of savings on growth is presented in the first chapter of this thesis[4], and the relating results are explained in the conclusion.

As regards technology, it must be said that the classical model, and also the endogenous growth theory identify it as one of the most important sources of growth. Therefore, a country can acquire technology either by investing in research and development, or by importing it from other countries, or by pursuing both practices. If the investments in research and development field remain constant, the more a nation is open to trade with other countries, the more it will be advanced technologically speaking, and the more it will grow[5]. Even though this statement seems obvious, many scholars have demonstrated that in some specific cases it does not represent reality. This means that, on the one hand, a country can benefit from the technology acquired from abroad, by getting nearer to the technology frontier; but on the other hand, the nation could become more sensible to external crises, experimenting sudden stops and current account reversals[6]. As the economist Edwards (2006) states, some countries as Korea and China, have initially decided to apply a protectionist strategy in their economy, as they preferred not to risk to be exposed to threats and to be economically self-sufficient. Other countries instead preferred to open their capital accounts and to practice trade with foreign countries. Which of the two approaches has led to the highest economic growth? This is the question that the second chapter addresses, by introducing an econometric model released by Edwards in 2006. The results of the study are summarized in the conclusion of this thesis.

Being an open country is a concept with a very broad meaning, not only it means accepting to import technology from abroad and to exchange goods and services with other nations, but also to accept or to implement foreign direct investments. The fact that a country has an open capital account is linked to the way it deals with inwards and outwards foreign direct investments. The more the nation is open, the more it sees foreign direct investments as a

---

4 This theory has been retrieved from the work of Philippe Aghion, Diego Comin, Peter Howitt (2006), *When does domestic saving matter for economic growth?* National Bureau of Economic Research

5 Solow model

6 Sudden stops are defined as abrubt reductions of the net capital flows into a country. Current account reversals are instead reductions in the current account deficit. The relationship between capital account openness and sensibility to external crises has been addressed by the economist Sebastian Edwards, (2007). *Capital Controls, Sudden Stops, and Current Account Reversals*. Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences.

growth opportunity. However, this does not mean that a non-industrialized country and an industrialized one, receiving the same amount of FDI, will experiment the same growth increase. The third chapter indeed is aimed at showing the relationship between foreign capital and growth, thanks to the study carried out by Prasad, Rajan and Subramanian (2007). The three scholars found very interesting results about this correlation, different across non-industrialized and industrialized countries.

As everything that was observed in the first four chapters mainly concerns the theory and the econometric empirical models, which were very useful to understand how a country grows in relationship with its openness towards foreign markets, it is very interesting to explore a real world example. Indeed, China, at the very beginning of the last century and in the Mao period, was a very closed economy, with the objective of self-sufficiency[7]. In depending as little as possible from other countries, China had to rely overall on its own savings, which were, in that period, the main drivers of the country's economic growth[8].
In addition, numerous economic imbalances were present in the past, and are in part still a problem in China, such as the large gap between households' investments and state owned enterprises' investments.
Ultimately, this thesis discusses the main economic conditions that changed after the reform of the year 1978, transforming China in a more open country towards foreign capital and trade, and how this reforms affected the growth of the country.

7 Ross Garnaut, Jane Golley and Ligang Song (2010). *China: the next twenty years of reform and development.* The Australian National University E Press.

8 Ettore Dorrucci, Gabor Pula and Daniel Santabárbara (2013). *China's economic growth and rebalancing.* ECB Occasional Paper series, volume 142, pages 1-56.

2. Determinants of economic growth

2.1. The Solow model

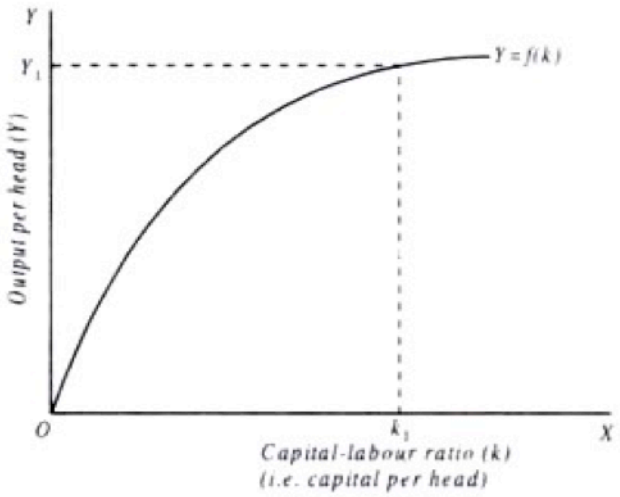
The Solow model, as it is interpreted by Mankiw and Taylor (2007), suggests that the main factors that affect growth are capital, labor and technology.

In this model, the supply for goods is determined by the following equation:

$$Y = F(K,L)$$

Where K indicates capital, and L labor. The Solow model assumes the presence of constant returns to scale; therefore the equation can be expressed in terms of product per unit of labor, in order to obtain:

Figure 1. Production function



Source: N. Gregory Mankiw, Mark P. Taylor (2007)

$$Y/L = F(K/L,1)$$

The production function indicates the relationship between capital per unit of labor, and output. As it can be seen from the function, when the amount of capital in a country is low, increasing it by a certain amount will increase the output significantly. Instead, in a country that already has a large amount of capital, an increase of it will lead only to a small increase in output per unit of labor; in other words, the marginal product of capital is decreasing.

The demand for goods is instead generated by private consumption and investment, according to the following equation:

$$y = c + i$$[9]

The net exports are omitted because the model is considering a closed economy.

If each consumer saves a fraction *s* of its income and spends *1-s*, the consumption equation can be expressed as:

$$c = (1-s)y$$

And replacing it into the demand for goods function:

$$y = (1-s)y + i$$

$$i = sy$$

This equation is very important, as it states that investments and savings should always move together inside a given country.

As stated before, capital is very important for the economic growth of a country. It is treated in the Solow model as a function of investment rate and depreciation rate; the former increases the capital stock, while the latter decreases it. The level of investment, in turn, is affected by the savings rate according to the following equation, obtained by substituting the output level with the production function in terms of unit of labor:

$$i = sf(k)$$

To include the depreciation, the model introduces a proportion δ of the capital that is lost every year, and the higher the capital, the higher the depreciation rate.

In fact, the capital stock variation Δk is given by the difference between investment (sf(k)) and depreciation δk:

$$\Delta k = sf(k) - \delta k$$

There is only one level of capital k^*, for which investment is equal to depreciation, in other words for which the change in the capital stock stays constant over the years. This level of k^* is called the *stationary state level of capital*, which is considered the condition to which all economies converge in the long run, or the long run equilibrium.

If a nation has a level of capital higher than the stationary state level, then investment will be lower than depreciation, and the decrease in the existing capital stock will be higher than the new capital accumulation. For this reason, k will diminish until it reaches the stationary state, where there is no pressure anymore on it. The reverse happens in a country that has a capital stock lower than the stationary state: in this case the investments are higher than the depreciation, and they will bring the capital to an increase, until the long run equilibrium is reached again.

[9] Y is intended as the output level per capita, c is the proportion of income that is consumed by the individuals, while i is the proportion of income that is invested.

In relation to this, it is interesting to quote the example of the miracle growth of Japan and Germany after the World War Second[10]: it is well known that the war destructed the major part of the capital stock of these two countries. However, they experimented an incredible growth between 1948 and 1972. Indeed, the German growth rate was about 5.7 percent per year, while the Japanese one was 8.2 percent. These rates, compared to the other countries were very elevated, for instance the US grew only by 2.2 percent a year in that period. This phenomenon of the miracle growth can be explained by the Solow model: in fact, if a country in the stationary state is subject to an abrupt fall of the stock of capital but the saving rate does not change, then the product will grow. This happens because, for low levels of capital, the investment accumulates more capital stock than what is lost due to the depreciation. The strong growth continues until the stationary state is reached again.
Lets hypothesize that in a particular country in the equilibrium, at a given time, the saving rate increases. Immediately after this increase, also the investments increase, while the stock of capital and the depreciation are left unchanged. The investment is higher than the depreciation; this fact determines a growth in the stock of capital that lasts until the economy reaches a new stationary state, where the aggregate production is higher than the one in the initial equilibrium. It can be concluded that the higher is the saving rate, the higher is the capital stock, and so also the aggregate production. An increase in the saving rate leads to a strong economic growth, which, however, is only temporary, as it lasts until a new stationary state is reached[11]. This is one of the main reasons why Germany and Japan grew so fast after the war.

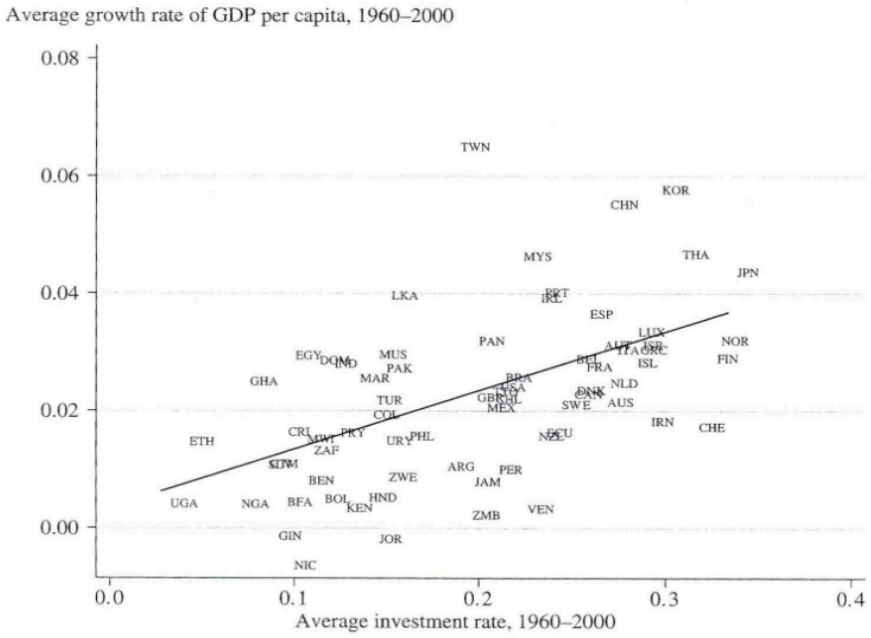
In summary, what the theory suggests is that the nations that have the highest saving rates will be the most productive and richest ones. But is this what happens in our real world?
Some empirical panel data shown in the Penn World Table, gather a sample of 96 countries in the period between 1960 and 2000. The data relating these countries are plotted in a graph, which shows the relationship between investments and GDP growth. The relationship is definitely positive, which is to say that countries with a higher saving rate experiment a higher growth rate than other countries that do not save much.
The highlighted correlation is very strong, and it helps to understand why some countries are poor and others are rich. However, this is not a comprehensive explanation, as there could be many other factors that influence the economic growth of a country. For instance, the fiscal

10 Mankiw and Taylor (2007), *Macroeconomia.*

11 Mankiw and Taylor (2007), *Macroeconomia.*

policy, the financial system development, the cultural differences, politics, corruption, institutions or the presence of conflicts in some countries. Also the reverse causality could be a problem, in other words, it could be a high growth rate that increases the savings and not reverse.

Figure 2: Growth and investment rate



Source: N. Gregory Mankiw, Mark P. Taylor (2007)

The correlation is not perfect, as for instance, Mexico and Zambia have very similar saving rates, but the Mexican growth is ten times higher than the one of Zambia. Given that savings are an important component in a country's growth path, and given that it has been said that their relationship with GDP growth is not perfect, the next paragraph is dedicated to analyze the effect of savings on growth in a more detailed and mathematical way.

2.2. Econometric evidence on the importance of savings and investments for growth

The importance of savings and investments on growth has been studied by many professors, in particular, a study carried out in Cambridge, by Philippe Aghion, Diego Comin, and Peter Howitt (2006)[12], points out in which sense and how savings and investments improve the economic conditions of a country.
The Solow model described above, only concerned closed economies, and little has been said in general about open economies, with cross-country capital flows.
If we take a look at some differences in the real world, we notice that Asia is growing very fast, contrary to Latin America. The first region had an average private saving rate, between 1960 and 2000, of 25 percent; Latin America's rate was instead of only 14 percent. But is this enough to say that savings improve economic growth?
In general, local savings matter for innovation and, in turn, for capital investments.
In poor countries, in particular, savings are very important, as they give the possibility to firms to create new technologies, and so to attract foreign investments.
The *technology frontier* is defined as the general level of technology development in the advanced economies.
The main results brought by the economists show that if the selected country is far from the frontier, then an increase in the saving rate will affect positively growth and foreign direct investments. Instead, if the nation finds itself close to the frontier, then savings won't have a remarkable effect on growth. Moreover, the more the financial sector is developed, the higher will be the effect of savings on growth.

The example of Korea in the 1960s, as quoted by Philippe Aghion, Diego Comin, and Peter Howitt (2006), is very interesting: between 1958 and 1962, the country was experiencing a period of recession, with high interest rates. To overcome this situation, in 1965 the government decided to make a reform, which touched the private savings rate. In particular, the saving ceiling was moved from 15 percent to 30 percent. As a result, the bank savings

[12] P. Aghion, D. Comin, P. Howitt, (2006). *When does domestic saving matter for economic growth?* National Bureau of Economic Research.

deposits increased, the value of these savings also increased by 50 percent in the last three months of 1965.
Moreover, between 1962 and 1966, the authorities made many efforts to attract foreign investments: for instance, they created laws that allowed for tax holidays, duty free import of inputs, protected property against expropriation. In addition, it is important to state that the Korean Exchange Bank was fundamental in the internationalization process, as it was able to provide supplier's credit. This means that, as foreign firms provided loans to Korean companies in order to purchase assets, raw materials and equipment, the Korean Bank was able to secure these loans, mostly thanks to the increased amount of savings deposited. After that period, foreign direct investments rose significantly in Korea, in 1973 the country approved 271 investments, and contributed to import new technologies, which in turn increased productivity. The data suggest that the average annual growth rate of output per worker in 1962-68 was 6 percent, while in the subsequent years, until 1974, it rose to 6.3 percent.

Also in Taiwan, in 1950, the government pursued a high interest rate policy to increase the saving rate. This policy also reduced inflation, which in turn increased the real interest rate. It averaged around 17 percent between 1952 and 1958. The saving rate increased from 12 percent in 1962, to 35 percent in 1973; not only due to the interest rate policy, but also thanks to some favorable reforms, such as the introduction of a high down payment for housing or a variety of tax policies. As a result of that, one fifth of the investments in Taiwan in the 1970s came from foreign owned firms.
The difference between the Korean case and the Taiwan one was that the last did not have an efficient financial system to support the large foreign investments that were needed to import the right technologies to reach the technology frontier. In fact, domestic banks did not have enough credit to serve as collateral to enable the transfer of technology; this was the case, for instance, of the automobile industry[13].

To definitely state that savings have a positive impact on growth, an econometric empirical study was carried out. This study concerned a sample of 118 countries, based on cross-country panel data that start from 1960 and end on 2000. The main sources of the related information were the World Bank and the Penn World Tables.
The regression constructed by the economists is the following one:

[13] Aghion, Comin, Howitt (2006)

Equation 1: Growth rate and the average saving rate

$$\ln(y_{it+10}/y_{it})/10 = \alpha_i + \rho\, t + \beta\, \ln y_{it} + \gamma s_{it,t-4} + \epsilon_{it}.$$

Source: Aghion, Comin, Howitt (2006)

In this log-linear model, the dependent variable, y_{it}, represents the growth rate of income per worker from year *t* to year *t+10*, while the independent variable is represented by the average saving rate, $s_{it,t-4}$, both public and private, in a five years period. The model controlled for time trends and also for countries' fixed trends, for example the property rights protection, in order to isolate the effect of the independent variable on growth.
The study divides the data in three samples: the sample of poor countries, of rich countries, and the one containing all the 118 countries.
The results of the regression explained that there is a positive relationship between savings and growth in a ten year-time and that this effect is more significant in poor countries, so in countries more distant from the technology frontier. More specifically, the coefficient of savings was found to be 3.9 percent in poor countries; which means that if savings are increased by one percentage point, growth increases by 3.9 percent. The coefficient on savings in rich countries was about half of it. This difference in coefficients is statistically significant at the 10 percent level. The econometric model explains what the theory had predicted; indeed poor countries need a high saving rate in order to use it as collateral for foreign investments. The higher the saving rates, the more the firms from abroad are attracted to invest in the country. It is not the same for rich countries that already have a large amount of capital and foreign firms have already invested in their nation. They do not need to attract foreigners in order to grow; this is why the saving rate is not a good measure of a rich country's growth path.

In the model described, public savings are used as collateral for foreign technology investments; public savings and private savings are equally important for economic growth. Instead, if public savings couldn't be used as collateral, then private savings would have a major effect on growth than the public ones[14]. In order to investigate more deeply on the effect of private and public savings taken separately, data from the World Bank have been observed. It is concluded that for countries far from the frontier, the technological change is mostly driven by private savings, which definitely have a stronger effect on growth than public savings. In particular, a 10-percentage point increase in the average private savings

[14] Aghion, Comin, Howitt (2006)

rate, distributed in a five years period, is associated with a 0.5 percent increase in productivity growth during the following ten years. The effect of public saving is instead negative in the model, but statistically insignificant.

To conclude, technological improvement in relatively poor countries requires a mix of foreign investments and internal financial efforts. Domestic savings, overall private, are very important in this process as they ensure a collateral for foreign investors. Relatively rich countries' growth, instead, depend less on savings, as they are near to the technological frontier, and do not need to attract foreign investment.
Now that the effect of savings on growth has been explained, the aim of the next paragraph is to understand how technology improves the economic conditions of a country.

2.3 The influence of technology on economic growth, and the Endogenous Growth Theory

Until this moment, it has been dealt with the importance of savings and investments to determine technological development and so economic growth in a country. But how does technological improvement affect economic growth in particular?
To introduce the influence of technology in the classical model, Mankiw and Taylor (2007) explained that the production function must be written as:

$$Y = F(K, L \times E)$$

Where E represents the efficiency of labor. The higher the technology development in a country, the higher the efficiency. This variable, for instance, has increased all over the world at the very beginning of the 20th century, when the chain production was introduced; it has also increased in the last decades, with the introduction of Internet and of the fastest ways of communication.
L x E is intended as the effective number of workers in a nation.
The most common hypothesis is that the technology improvements increase the efficiency of labor by a constant factor *g* per year; this type of technological growth is called *labor-augmenting,* as it allows each worker to produce a higher quantity of products and services keeping constant the amount of hours worked[15].

[15] Mankiw and Taylor (2007). *Macroeconomia.*

The labor instead is supposed to grow at rate of n per year, so the effective number of workers rises by $g + n$ per year.

The equation that describes the change in the capital stock, in presence of technology, is the following one:

$$\Delta k = sf(k) - (\delta + n + g)k$$

This means that the change in the capital stock is equal to the difference between the investment and the equilibrium investment. Where $k = K/ (L \times E)$. The stationary state is the situation in which the capital per effective labor and the output per effective labor are constant; this state represents the long run equilibrium.

2.3.2 The endogenous growth theory

The classical model explains how technology influences economic growth, but where does the technological development come from?

The endogenous growth model tries to give an explanation to this problem, refusing the hypothesis of the exogenous progress of the technology, introduced in the Solow model.

The identified production function relates K, the capital stock, to A, a constant that measures the quantity of product for unit of capital:

$$Y = AK$$

The main difference between this model and the classical one is that the endogenous model doesn't assume decreasing marginal product of capital; in other words, the higher the capital, the higher the aggregate product. Is this a reasonable hypothesis? According to the Solow model, it is natural to assume decreasing returns to scale, as it is absurd to admit that an employee who works with ten computers is more productive than one with a unique computer. Instead, the endogenous growth theory model, takes into consideration in particular not the physical capital, but the knowledge. In this sense, the higher the knowledge, the higher the production level. So if we take into account the fact that capital may be referred to as knowledge, then the hypothesis of constant marginal product of it is reasonable to think of. Instead, the change in the capital accumulation is defined as before, which is to say the amount invested, sY, minus the depreciation rate, δK:

$$\Delta k = sY - \delta K$$

Substituting Y with AK, and doing some algebraic transformation, we obtain:

$$\Delta Y/Y = \Delta K/K = sA - \delta$$

The illustrated equation shows what are the determinants of aggregate product growth, $\Delta Y/Y$. In particular, we note that if $sA > \delta$, then the economy will grow in a continuous way. Interestingly, in this model the growth determined by the savings is permanent, while in the Solow model it is only temporary, as it is aimed towards a long run equilibrium state.

2.4 Beyond the textbook theory: the Solow model including the accumulation of human and physical capital

The exclusion of the accumulation of the human capital from the Solow model can justify the reason why the estimated effects of saving on growth are so large[16].

First, higher saving or lower population growth leads to a higher income for the country, and thus to a higher level of human capital. Second, human capital accumulation could be correlated with the level of savings; this fact would bias the effect of savings on growth. According to Romer and Weil (1990), in fact, human capital is an omitted variable in the Solow model, and an augmented model should be created in order to eliminate the omitted variable bias on growth. In order to solve this problem, the two economists wrote a new production function, with the presence of human capital explained by the variable $H(t)^{\beta}$.

The augmented production function is the following:

$$Y(t) = K(t)^{\alpha} H(t)^{\beta} (A(t) L(t))^{1-\alpha-\beta}$$

Where Y(t) is the output at time t, K(t) is the capital; A(t) is the technology level, while L(t) is the labor. If everything is divided by L(t), it is obtained the entire function in terms of units of labor, and if it is assumed that human capital depreciates at the same rate as the physical capital, then the evolution of the economy is determined by:

$$k(t) = s_k y(t) - (n + g + \delta) k(t)$$
$$h(t) = s_h y(t) - (n + g + \delta) h(t)$$

Where s_k is the fraction of income invested in physical capital, while s_h is the fraction invested in human capital. The assumption valid in the Solow model, and in the model proposed by Romer and Weil (1990) is the decreasing returns to capital, which is true if $\alpha + \beta < 1$.

[16] N. Gregory Mankiw, David Romer, David N. Weil (1990). *A contribution to the empirics of economic growth.* National Bureau of Economic Research.

The human capital investments are referred to as investments in the form of education, and the proxy used for human capital accumulation is the percentage of the working-age population that is in the secondary school. The econometric specification used has as dependent variable the log of income per capita, and as other variables the log of investment rate, the log of $n + g + \delta$, and the log of the percentage of the population the secondary school. The results of the econometric study, carried out by the two economists (Romer and Weil, 1990), show that the coefficient on investments on the human capital is always positive, in the case of non-oil, intermediate, and OECD countries. Summing up, it can be concluded that human capital accumulation has a positive effect on income per capita, which in turn affects the savings rate. In fact, adding the human capital to the Solow model improves its performance.

2.5 The phenomenon of convergence in the Solow model

Travelling all over the world, it is very easy to note the differences in the economic conditions in different countries; poor countries, for instance, have a GDP at least ten times lower than the one of the rich nations. If the poor economies grow at a faster rate than the rich economies, then it will happen that they will reach their living standards. This property is called *convergence*. According to the Solow model, the convergence depends on the internal conditions of the countries; for example, if two countries have the same saving rate, same stationary state, but one of them has a lower capital stock, the poorer will grow at a faster rate, as explained before. If instead the two countries have a different stationary state and different saving rates, it is very unlikely that the convergence between them will take place.
It has been demonstrated, in practice, that economies tend to the convergence phenomenon, at a rate of 2 percent a year. This also happened in Italy: in the middle of the 20^{th} century, the differences across regions were very remarkable; now they are slowly disappearing thanks to the convergence.

This chapter has explained in theory and in practice how the growth of a country works. It has indeed dealt with capital, investments, savings, technological improvements and human capital improvements. Using theory models and empirical models to understand how these variables affect the growth problem both for rich and for poor countries.
But are these the only variables that influence growth? What can be said about the growth rate of closed and open economies?

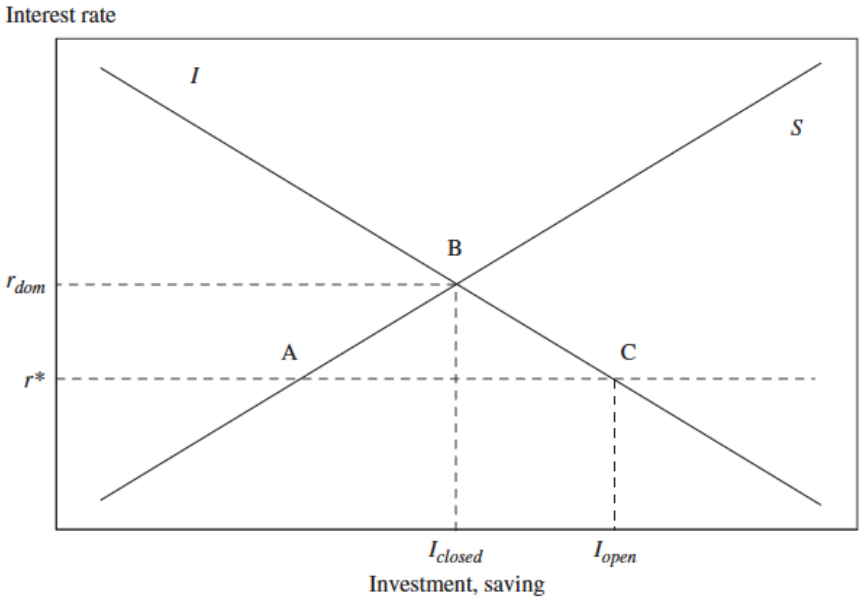
3. Capital account liberalization

The aim of this chapter is to investigate whether there is a significant correlation between capital account liberalization and economic growth. It does that by first providing a theoretical approach to the question and then by reporting an econometric analysis carried out by Prasad, Rajan and Subramanian in 2007.

3.1 Common beliefs on how capital account liberalization improves the economic conditions of a country

Since the times of the Adam Smith's Wealth of Nations, many economists have argued how free trade could have a positive effect to the efficiency of an economy, by allowing it to produce only the products in which it is specialized and buying the rest of them from abroad. The textbook theory suggests that, as is shown in the graph, when the economy is closed to foreign capital, then the equilibrium interest rate is at point B.

Figure 3. Saving, investment and growth



Source: Prasad, Rajan, Subramanian (2007)

As soon as the capital account is liberalized, the level of investments increases to point C, mostly thanks to foreign saving. As a result of that, the domestic interest rate r_{dom}, will move downwards towards the world interest rate r*. With the decreased interest rate, investments will continue to increase and growth will take place in this specific country.

But do the real world data confirm this theory? Do the more open countries have higher standards of living? There is a large debate going on through economists regarding this issue.
The economists Andrew Warner and Jeffrey Sachs (1995)[17], analyzed the data corresponding to the period from 1970 to 1989, discovering that the most opened economies grew at an average rate of 2.3 percent per year, while the least opened grew at only 0.7 percent on average. This study is in accordance with the Smith's analysis of efficiency, however their proof was not sufficient to conclude the debate, as the correlation that they identified does not demonstrate causality. Which is to say that the closure towards trade with foreign countries could be caused by internal restrictive decisions by the government of a particular country, and these decisions could, in turn, affect the economic growth of the nation. So the slow growth of certain economies may not only be caused by the fact that they have a low degree of openness, but also by other internal factors.
Another way of addressing the issue is to consider what happens when a closed economy decides to initiate trade with the world[18]. In most of the cases, the country has always presented an acceleration of growth. As in the case of Japan in the 1950s, of South Korea in the 1960s and of Vietnam in the 1990s. Unfortunately, also in this case, the correlation does not provide a causality connection; in the sense that there could have been other reforms in that years that accelerated the growth of the quoted countries.
A third method, proposed by the economists Jeffrey Frankel and David Romer (1996), takes into consideration some geographical factors. Some countries are less incentivized towards free trade as they are isolated from the rest of the countries. For instance, New Zeeland is relatively disadvantaged in comparison to Belgium, as it is more distant from the nations with large populations. In the same way, also nations not having a border on the sea and important harbors could be considered disadvantaged. The two economists constructed a model and came to the conclusion that if the ratio between trade and GDP increases by 1 percent, the income per person will increase by at least 0.5 percent.

[17] Jeffrey D. Sachs, Andrew M. Warner, (1995). *Economic convergence and economic policies.* National Bureau of Economic Research.

[18] Mankiw and Taylor (2007), *Macroeconomia.*

3.2 Econometric evidence, sudden stops and current account reversals

There is a large literature criticizing capital mobility, believing that it produces macroeconomic instability. The economists that go against capital mobility, such as Stiglitz (2000)[19], and other supporters, argue that capital controls can benefit a country in two ways: first by reducing the sensibility of the domestic economy to external shocks or crises, and second by helping countries which have suffered an important crisis to grow again, giving them more time to restore their financial sector by themselves. It was argued by Stiglitz (2000), that it was thanks to capital controls that Chile avoided to be involved in the macroeconomic crisis in Latin America during the 1990s.

But generally, this theory has never had many empirical foundations, as it has been difficult to measure in a scientific way the capital flows across countries, and the debate on whether it could be considered right or wrong, is still going on between economics doctors.

It is interesting to investigate, as the economist Sebastian Edwards (2007)[20] did, the relationship between capital mobility and external crises, in particular the sudden stops of capital inflows and the current account reversals. Sudden stops are defined as abrupt reductions of foreign inflows of capital in a specific country that can lead to significantly low rates of return, of investment and of growth; while current account reversals are reductions in the current account deficit that take place in a period of one or two years.

The experiment carried out by Edwards (2007) had the objective of understanding if countries with more restrictions are actually less sensible to external crises, and if they can more easily restore from it. The analysis is carried out for three types of countries: the ones with low, intermediate and high capital mobility. Of course, the main interest is to compare the nations with high and low capital mobility.

3.2.1 A measure of a country's openness

First of all, before starting with the econometrics specification, it is necessary to determine an index that specifies the degree of openness of a country.

---

19 Joseph E Stiglitz (2000). *Capital market liberalization, economic growth, and instability.* World development, Volume 28, Issue 6, pages 1075-1086.

20 Sebastian Edwards, (2007). *Capital Controls, Sudden Stops, and Current Account Reversals*. Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences.

It is important to state that legal impediments to capital movements are sometimes not sufficiently effective, and capital mobility may still take place despite them, as it happened in Latin America in 1982.

Many studies have been made to determine the degree of openness of a country; for instance, Harberger (1998) argued that the integration of capital markets could be measured by the convergence of private rates of return to capital across countries. Meanwhile, Feldstein and Horioka (1980) investigated the behavior of savings and investments in different countries, stating that in an open world, the amount saved will tend to move away from the original country; in the same way, domestic investments will tend to be funded by foreign capital. Another study conducted by Edwards (1985) and Edward Kahn (1985), admitted that the convergence between national and external interest rates could be used to asses the financial openness of a country. In particular, they have found that Latin America was a much more open country than what the legal restrictions governing in that countries suggest.

There are many other types of indexes experimented in studies, but they all have some limitations: first of all they do not distinguish between different types of legal limitations; secondly, they do not take into consideration the difference between exchange restrictions and capital account restrictions; thirdly, they do not consider the fact the most of the controls are easily evaded.

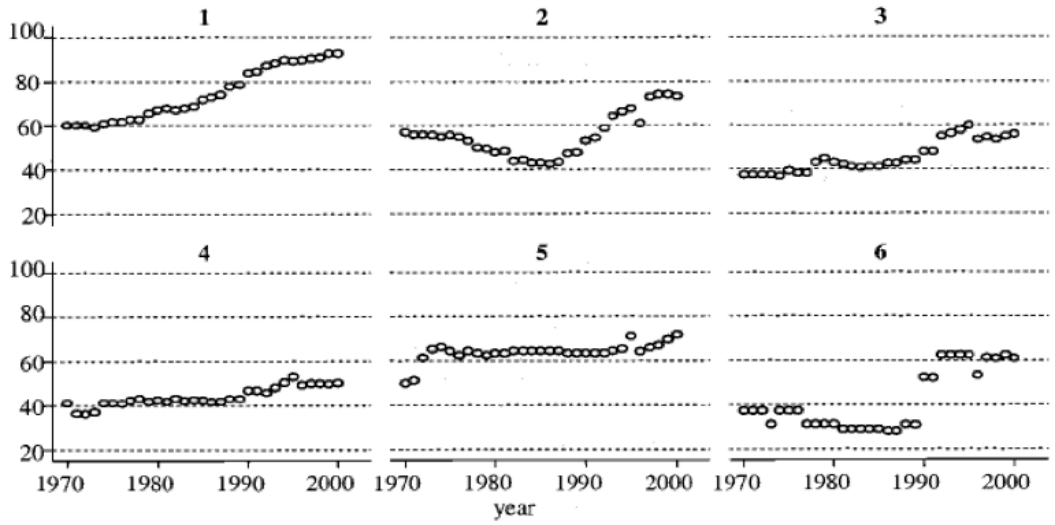
Other authors, such as Bekaert (1995), Harvey (2000) and Lundblad (2001), have tried to find this index analyzing the degree of liberalization of the stock market. Edison and Warnock (2003) argued that this index could be constructed according to the amount of restrictions on the foreign holdings of domestic assets.

These studies are continuing nowadays, however the authors are focusing more on the intensity of controls and highlighting the fact that restrictions are not always respected.

3.2.2 The evolution of capital mobility in the world economy: 1970-2001

In order to evaluate the degree of capital mobility, Edwards (2007) created a new index: it goes from 0 to 100, where 100 represent the maximum capital mobility. This index contains data for 163 countries. In addition, it divides the world in six groups of countries: Asia, Europe, Latin America and the Caribbean, Africa and the Middle East.
The following graph shows the evolution of the capital mobility in these different groups of countries.

Figure 4: The evolution of capital mobility



Note: Figure shows graphs by region code: 1 = industrial countries, 2 = Latin America and Caribbean, 3 = Asia, 4 = Africa,
5 = Middle East, 6 = Eastern Europe.
Source: Sebastian Edwards (2007)

The first thing that can be viewed in the graph is that the capital mobility index has had an upward trend in all of these countries, during the period analyzed. In particular, the average index of industrial economies moved from 66.5 in 1970, to 88.8 in 2000. The Middle East, instead presented a moderate capital liberalization: from an average of 41.3 to 49.1. From the figure reported, it can be understood that there have been different movements in the capital openness. For example, while in Europe the process towards liberalization has been smooth, in Asia there has been an increase in capital mobility in the 1990s followed by an imposition of controls after the crisis in 1997.

To see how capital mobility has increased in the three denoted decades, it is necessary to point out that in 1970, 44 percent of the observations corresponded to low, 26 percent to intermediate, and 30 percent to high mobility. Instead in 2001, the percentage of low mobility countries was 24, of intermediate 25, and of high mobility 52.

The following tables list all the countries analyzed in terms of their level of capital mobility, where countries with a very high capital mobility have an average index higher than or equal to 87.5, while very low capital mobility countries have an index lower than or equal to 12.5:

Table 1: Countries with very high capital mobility

1970–1979		1980–1989		1990–2000	
Bahrain	87.5	United States	95.0	Austria	87.5
The Gambia	87.5	Antigua and Barbuda	87.5	Belgium	96.6
Germany	96.3	Bahrain	87.5	Canada	100.0
Hong Kong, China	95.0	Germany	98.8	Denmark	100.0
Lebanon	87.5	Hong Kong, China	100.0	Estonia	87.5
Panama	100.0	Kuwait	87.5	Finland	95.4
Switzerland	93.8	Lebanon	87.5	France	90.9
United Arab Emirates	87.5	The Netherlands	92.5	Germany	100.0
		Panama	95.0	Guatemala	100.0
		Singapore	100.0	Hong Kong, China	100.0
		Switzerland	100.0	Ireland	93.1
		United Arab Emirates	87.5	Italy	96.6
		United Kingdom	100.0	Kuwait	87.5
		United States	100.0	Kyrgyz Republic	87.5
		Uruguay	95.0	Latvia	87.5
		Vanuatu	87.5	Lebanon	87.5
				Lithuania	87.5
				The Netherlands	100.0
				New Zealand	93.1
				Norway	100.0
				Singapore	97.7
				Sweden	87.5
				Switzerland	100.0
				United Arab Emirates	87.5
				United Kingdom	100.0
				United States	100.0
				Uruguay	93.1
				Vanuatu	87.5

Source: Edwards (2007)

Table 2: Countries with very low capital mobility

B. Very low capital mobility

China	0.0	Bangladesh	12.5	
Ethiopia	12.5	Iceland	12.5	
Iceland	12.5	Morocco	10.0	
Morocco	3.8	Sri Lanka	12.5	
South Africa	7.3			
Sri Lanka	12.5			

Source: Edwards (2007)

Another useful table is the following one, which indicates which countries passed from a very high index of capital mobility to a very low index and reverse. It is important to note that the number of countries passing from low to high capital mobility has been increasing through the decades, while the number of low mobility countries declined. In the following tables, the countries passing from low to high capital mobility are assumed to

pass from an index lower than 50 to one higher than 50, and reverse for the countries passing from high capital mobility to low.

Table 3: Countries passing from very high to very low capital mobility

A. From high to low capital mobility

1970–1974	1975–1979	1980–1984	1985–1989	1990–1994	1995–2000
	Uruguay	Barbados Grenada Haiti Mexico Nicaragua Paraguay			

Source: Edwards (2007)

Table 4: Countries passing from very low to very high capital mobility

B. From low to high capital mobility

		Australia Norway Uruguay	Portugal	Argentina Costa Rica El Salvador Grenada Hungary Mexico Paraguay Peru The Philippines Trinidad and Tobago	Colombia Ecuador Egypt Guyana Haiti Iceland Israel Jamaica Jordan Kenya Laos Mauritania Nicaragua Rwanda Uganda Zambia

Source: Edwards (2007)

3.2.3 Difference between low and high capital mobility countries

The phenomena of sudden stops and current account reversals, as Edwards (2007) admits, have had a major frequency in the developing countries, in the Middle East and in Africa. Indeed, the incidence rate of sudden stops in the Middle East was of 11.3 percent between 1970 and 2000, while in the industrial countries it was only of 3.7 percent. The aggregate rate has been 12.8 percent.

Moreover, the account reversals are also more frequent in the less industrialized countries, indeed the incidence rate in Africa has been 16.6 percent, whereas in Europe 2.4 percent.
In addition, 46.8 percent of the countries presenting a sudden stop also had an account reversal; so it could be hypothesized that the two phenomena tend to go together.
According to the results of the experiment, in general, the incidence of sudden stops and account reversals is definitely higher in countries with low capital mobility. However, going more in the specific, in Europe and in the industrialized countries, the incidence is lower in high capital mobility countries than in intermediate or low mobility states; contrary to this, in Asia the incidence is lower on the low capital mobility countries than in the high ones.

3.2.4 Are countries with a higher capital mobility more exposed to crises?

In order to determine the relationship between capital mobility and the probability of a crisis, Edwards conducted an econometrics study. The two starting equations are the following ones:

Equation 2: long run GDP growth and the growth dynamic process

$$g_j^* = \alpha + \mathbf{X}_j\beta + \mathbf{R}_j\theta + \omega_j.$$

$$\Delta g_{tj} = \lambda(g_j^* - g_{t-1,j}) + \varphi v_{t,j} + \gamma u_{t,j} + \xi_{t,j}.$$

Source: Edwards (2007)

Where, in the first equation, g^*_j indicates the long run GDP per capita growth rate in a certain country j; Xj stands for all the variables affecting the policy and the institutional element that in turn affect growth; R_f is a vector of regional dummies, which is to say variables that assume the value of 1 or 0, and ω_f is the heteroskedastic error term. α, β, θ, are parameters. The second equation, instead, expresses the fact that the actual country's growth will be different than the long run rate of growth, due to the existence of three types of shocks: the shocks in external terms of trade ($v_{t,f}$), with its coefficient φ assumed to be positive[21], other types of shocks including the sudden stops and the current account reversals, the presence of which is indicated by the term $u_{t,f}$, and all other shocks affecting the GDP growth, captured in

[21] As increasing the terms of trade will increase growth for a certain period.

the heteroskedastic error $\xi_{t,f}$. Indeed, $g^*_j - g_{t-1,\ j}$ is the difference between the long run GDP per capita growth and the GDP per capita growth in a certain year t-1, in country j. The parameter λ is very important, as it indicates that in the long run, the actual growth rate and the long run normal rate will converge at that rate.

Instead, the objective of the study is to estimate the sign of the coefficient on $u_{t,\ f,}\ \gamma$, which will be significantly negative if the sudden stops and current account reversals have a negative effect on growth. After estimating the sign of the coefficient, it is important to understand if this effect has a greater magnitude in countries with lower capital mobility or not.

The data used in the model concern a sample of 157 countries within the period of 1970-2000. The following table reports the estimations of the coefficients previously explained:

Table 5: Current account reversals, sudden stops and GDP per capita growth

	Eq. (1) R.E.	Eq. (2) F.E.	Eq. (3) R.E.	Eq. (4) F.E.	Eq. (5) R.E.	Eq. (6) F.E.
Constant	–0.15	–0.14	–0.27	–0.25	–0.14	–0.10
	(1.16)	(1.41)	(2.62)***	(2.44)**	(1.32)	(0.97)
Growth gap	0.82	0.86	0.81	0.87	0.82	0.88
	(42.10)***	(42.73)***	(40.18)***	(41.62)***	(40.76)***	(42.28)***
Change in terms of trade	0.06	0.07	0.07	0.07	0.08	0.08
	(12.65)***	(12.19)***	(11.31)***	(10.74)***	(12.18)***	(11.75)***
Reversal	–2.01	–2.10			–1.80	–1.97
	(6.64)***	(6.72)***			(5.50)***	(5.82)***
Sudden stop			–1.23	–1.25	–0.54	–0.60
			(2.82)***	(2.77)***	(1.19)	(1.31)
No. of observations	1,821	1,821	1,641	1,641	1,635	1,635
Countries	90	90	81	81	81	81
R^2	0.49	0.49	0.51	0.51	0.52	0.52

Notes: R.E. = random effect; F.E. = fixed effect; *t*-tests reported (in parentheses) are absolute values; country-specific dummies are included, but not reported.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

Source: Edwards (2007)

In all the four equations, the coefficient on growth gap is positive; this means that countries with a higher gap will experience a higher temporary growth. Also the coefficient on terms of trade is always positive, indicating that they have a positive effect on growth.

In the first two equations only the current account reversals are included, in equation (2) and (3) only sudden stops, while in the last two both effects are included.

As Edwards (2007) points out, in each equation, the coefficient of interest has a negative sign, suggesting, in general, that current account reversals and sudden stops have a negative effect on growth. In particular, in the random effect column, if only reversals are considered, ceteris paribus, a reversal reduces growth by 2.01 points, and this effect is significant at the 1 percent level. A sudden stop, instead, reduces growth, significantly at the 1 percent level, by 1.23

points, ceteris paribus. These results suggest that the negative effect on growth of sudden stops is not as severe as the effect of reversals.

As regards the last two columns, indicating the combined effect of the two shocks, we can see that while the coefficients on reversals are still negative and significant at the 1 percent level, the ones regarding sudden stops are not statistically significant anymore. This suggests that, if a country experiments a sudden stop, but it is able to avoid a current account reversal, then it will not face a significant growth decline.

In order to include in the analysis the effect of being an open country, we must add an interaction term in the equation that determines the capital growth. In particular, we focus our attention in establishing what is the change in the probability of experiencing a current account reversal, including the interaction term.

We estimate the following equations:

Equation 3: growth, capital mobility and openness

$$(1') \qquad g_j^* = \alpha + \mathbf{X}_j\beta + \mathbf{R}_j\theta + \omega_j.$$

$$(2') \qquad \Delta g_{t,j} = \lambda(g_j^* - g_{t-1,j}) + \varphi v_{t,j} + \gamma u_{t,j} + \theta(u_{t,j} \times \text{Openness}_{t,j}) + \xi_{t,j}.$$

$$(3) \qquad u_{t,j} = \begin{cases} 1 & \text{if } u_{t,j}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

$$(4) \qquad u_{t,j}^* = \mathbf{W}_{j,t}\alpha + \varepsilon_{j,t}.$$

Source: Edwards (2007)

Equation (1') indicates the long run growth, as before. Equation (2') changes, as it includes $u_{t,f}$, which is a dummy variable, assuming the value of 1 if the country has experienced a current account reversal, and the value of 0 otherwise. As in the previous model, we expect the coefficient on this variable to be negative; indeed, in general, a reversal reduces the growth of a country. In addition, we have the interaction term, $u_{t,f}$ x $\text{Openness}_{t,j}$, which determines the additional effect on growth of being an open country, in the case the variable $u_{t,f}$ is one. In other words, in the case that country has experienced a current account reversal.

Instead, the third and the fourth equations tell us that having a current account reversal is a linear function of the variable $W_{f,t}$, which represents the degree of capital mobility or financial openness of a country. So we could expect the coefficient α to be negative, if we believe that having a higher capital mobility reduces the probability of incurring in a current

account reversal. On the other hand, we could expect this coefficient to be positive, if we agree with the economists that believe that higher capital mobility increases the risk of crises in a country.

As we are dealing with the probability of incurring in a reversal, we use a probit model, which is more precise than the linear probability model.

The results of the estimation are reported in the following table:

Table 6: Growth, reversals, openness and capital mobility

Variable	Eq. (1)	Eq. (2)	Eq. (3)
	A. Results from growth equation		
Growth gap	0.87	0.87	0.86
	(32.63)***	(32.66)***	(25.76)***
Terms of trade	0.07	0.07	0.07
	(8.48)***	(8.43)***	(6.47)***
Reversal	–5.35	–3.93	–6.72
	(4.83)***	(2.86)***	(3.69)***
Reversal · openness	0.02	0.02	0.01
	(2.22)**	(2.38)**	(0.97)
Reversal · capital mobility		–0.03*	–0.005
		(1.70)	(0.19)

Source: Edwards (2007)

First of all, as it may be seen, the coefficient on growth gap is positive, lower than one and statistically significant. Also the coefficients on terms of trade are significantly positive.

As regards reversals, the coefficients are significantly negative, indicating that a reversal has a remarkable negative effect on growth. Interestingly, the coefficient on the interaction between openness and reversals is significantly positive, meaning that the less open is a country to trade, the higher will be the cost of reversals, in terms of lower growth. Indeed, the costs of crises are inversely proportional to the country's degree of openness. A reversal will have a greater impact in a closed economy as Argentina, than in a more open economy as Chile, for instance.

The last row in the table, instead, interacts the degree of capital mobility with the presence of a current account reversal. The estimated coefficient is negative and statistically significant at the 10 percent level. According to the results of the estimation, the growth effects can be summarized in the following equation:

Equation 4: Effect of trade openness and capital mobility on growth

$$\text{Growth effect} = -3.93 + 0.02 \times \text{Trade openness} - 0.03 \times \text{Capital mobility.}$$

Source: Edwards (2007)

This equation indicates that while the growth effect will be positive in countries more open to trade, it will be negative for countries with a higher degree of capital mobility.

Consider, for instance, two countries with the same level of trade openness, say 60, and two different indexes of capital mobility, say 25 and 90. According to the equation 3, the country with the low capital mobility will have a growth decline of 3.48 percent (-3.93 + 0.02 x 60 – 0.03 x 25). Instead, the country with the high capital mobility will have a decrease on growth of 5.43 percent (-3.93 + 0.02 x 60 – 0.03 x 90).

To summarize, current account reversals are in general costly for a nation, in the sense that they reduce temporarily GDP per capita growth; sudden stops are instead not statistically significant in the growth dynamics. However, the results of the estimation suggest that countries with a higher degree of capital mobility will experience a deeper drop in growth.

3.3 Financial openness and Total Factor Production Growth

In a study conducted for the International Monetary Fund, the economists Kose, Prasad and Terrones (2008)[22], investigate the relationship between financial openness and total factor production growth (TFP). The authors distinguish between de jure capital account openness, or the absence of restrictions on capital account transactions, and de facto financial integration, measured by stocks of foreign assets and liabilities relative to the domestic GDP. The economists estimated a log-linear econometric model, over a period of ten years, identified by the following equation:

Equation 5: Change in the logarithm of TFP and Openness

$$y_{i,t} - y_{i,t-1} = \gamma y_{i,t-1} + \beta' FO_{i,t} + \varphi' Z_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t}$$

Source: Kose, Prasad and Terrones (2008)

Where $y_{i,t} - y_{i,\,t-1}$, stands for the change in TFP in a given country i between the year t-1 and the year t. $FO_{i,t}$ represents the independent variable, or the set of financial openness measures;

[22] M. Ayhan Kose, Eswar S. Prasad and Marco E. Terrones, (2008). *Does Openness to International Financial Flows Raise Productivity Growth?* International Monetary Fund.

while $Z_{i,t}$ is the set of relevant control variables, in the sense that they are correlated with the independent variable. μ_t represents time dummies for each year of the period considered, while η_i stands for the country fixed effects, which is to say all the effect that vary between the entities considered but not over time. $\varepsilon_{i,t}$ is the error term.

The results of the regression are explained in this table:

Table 7: Financial Openness and TFP Growth, Panel Regressions

	(1)	(2)	(3)	(4)
Initial TFP (in logs)	-0.61287***	-0.61490***	-0.61065***	-0.61220***
	[0.08458]	[0.08493]	[0.08610]	[0.08596]
Trade Openness (% GDP)	0.00498**	0.00531**	0.00452**	0.00486**
	[0.00215]	[0.00227]	[0.00215]	[0.00220]
Terms of Trade (% Change)	0.00177	0.00173	0.00196	0.00180
	[0.00436]	[0.00435]	[0.00436]	[0.00440]
Population Growth	-0.02407	-0.01742	-0.03441	-0.02662
	[0.04098]	[0.04575]	[0.04570]	[0.04586]
Private Sector Credit (% GDP)	0.00116**	0.00124**	0.00100*	0.00112*
	[0.00054]	[0.00060]	[0.00055]	[0.00057]
Institutional Quality	-0.00421	-0.00451	-0.00330	-0.00404
	[0.00619]	[0.00636]	[0.00616]	[0.00628]
Capital Account Openness (de jure)	0.07373**	0.07571**	0.06735*	0.07258**
	[0.03547]	[0.03555]	[0.03550]	[0.03516]
Total Liabilities (% GDP)		-0.00017		
		[0.00037]		
Total Assets (% GDP)			0.00028	
			[0.00019]	
Total Liabilities + Assets (% GDP)				0.00003
				[0.00013]
R squared	0.674	0.674	0.676	0.674
Countries				
Observations	252	252	252	252

Source: Kose, Prasad and Terrones (2008)

Note: The symbols *, **, *** indicate statistical significance at the 10%, 5% and 1% level respectively. Standard errors are reported in brackets.

This table presents the results from fixed effects (FE) panel regressions. The first column represents the variables that influence TFP growth only with measures of de jure capital account openness. We observe that this coefficient is significantly positive, indicating that de jure capital account openness increases the TFP. When de facto measures of openness are included, from column (2) to column (4), the coefficient on openness stays positive and statistically significant, meaning that de facto measures don't matter for total factor production growth. Why is this so? Because an open account by itself does not say anything about the level of financial integration of a country.

The measures of de facto integration are the total stock of external liabilities as percentage of GDP, which, as expected, has a negative effect on growth; the percentage of external total assets, affecting positively growth, and the sum of them. Even though their effects are reasonable, they are not statistically significant.

4.Foreign Direct Investments

This section is going to analyze the value of foreign direct investment in affecting growth. First of all it will present the main reasons why a nation should implement FDIs, then it will give a short idea of the main geographical areas where the FDIs are taking place, and in the end it will report an econometric analysis on how foreign direct investments implement growth.

4.1 Reasons for making Foreign Direct Investments

After the 90's there has been a large internationalization phenomenon among countries, and a reorganization of the factors of production. The foreign direct investments have been increasing ever since that period.
However, Italy arrived late to join this trend, both as an investor and as a receptor, mainly because most of the small and medium size Italian firms are not focused on the foreign market.
Foreign investments have lately increased also thanks to the new technology paradigm, which ensured fast and low cost means of transport for the merchandise.
In addition, another important phenomenon currently occurring, that increased the amount of FDI, is the "global value chain", which allowed the international division of labor and changed the structure of most of the multinational firms.
All this led to the formation of three main poles of foreign direct investments: the Asian Hub, the factory Europe and the factory North America[23].
The English economist Dunning (1994), pointed out that apart from the fact that a firm, which has remarkable competitive advantage over the foreign competitors, can find efficient the opportunity to become larger and increase its production using different available assets, there are other four main reasons for making foreign direct investments:
First of all, a firm might find efficient to move a part of the production chain in a nation where the production costs, overall the labor, are significantly lower than in the original country. This type of investment allows the multinational to produce at a lower cost, and so to increase its profits. As these investments are concerned with moving different stages of the

[23] Dunning, J. H. (1994). *Re-evaluating the benefits of foreign direct investment.* Transnational corporations, *3*(1), 23-51.

production chain in diverse countries, they are called "vertical foreign direct investments". Secondly, a company may decide to become international, in order to lower the transportation costs and to better reach the foreign market, avoiding in this way the international barriers. In practice, this firm will position some of its shops and factories directly in the interested country, so that it will not occur in any kind of transportation cost or problem in reaching the targeted market. These kinds of investments are instead called "horizontal foreign direct investments", or "market seeking investments".
The third reason for making foreign direct investments might be to provide the own country with resources, which are scarce in the domestic market. An example is what ENI did in the 1960s, a "resource seeking investment". The last way, according to Dunning (1994), is to make mergers and acquisitions, in order to get new knowledge, patents and improve the technology level. This is a "knowledge seeking investment".

4.2 Main geographical trends in Foreign Direct Investments

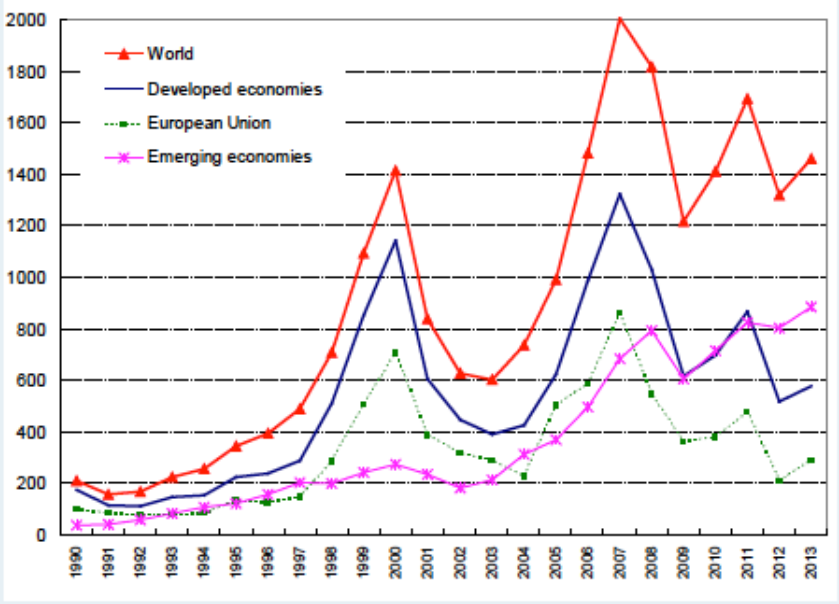
Barba Navaretti and Venables (2006), and Antras and Yeaple (2013)[24] recognized three main facts regarding the FDI world trends:
First of all, that the activity of the multinational firms is concentrated over all in the most developed economies, the foreign direct investments are mostly made between advanced economies (north-north FDI) and from developed economies to developing economies (north-south FDI).
Secondly, the field where the investments are more concentrated is the one, which involves more capital and technology, where there is a high expenditure for research and development.
Thirdly, the foreign direct investments between advanced economies consist in overall merger and acquisitions, while the ones towards developing economies are Greenfield investments.

These stylized facts are confirmed by recent data, but nowadays the geography of foreign investments is changing in favor of a greater presence of Eastern Asia and China.
Indeed, it can be seen from the graph that from 1990 to 2012 the FDI stock grew by ten times. In fact in 1990 the FDI represented the 10% of the world GDP, while it grew until the 30% at the end of 2012.
The world FDI flows had their peak in 2007, reaching almost 2000 billion of dollars; afterwards they remarkably decreased in 2008 and 2009, due to the world financial crisis, and

[24] Barba Navaretti, G., & Venables, A. (2006). *Facts and issues, from multinational firms in the world economy.* Princeton University Press.

increased again in the following two years, according to UNCTAD. In addition, in 2012 foreign direct investments decreased in the most advanced economies by -40%, while in the developing countries only by -1,9%. Finally, in 2013 there has been a general recover of the 11%.

Figure 5. Incoming FDI



Source: UNCTAD

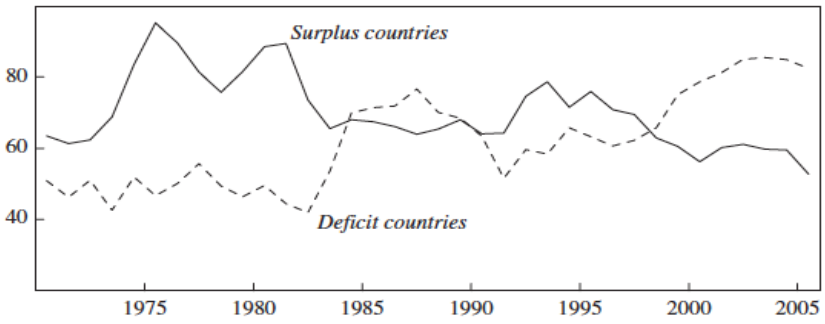
4.3 The relationship between Foreign Capital and Growth

John Maynard Keynes (1933) wrote in one of its less quoted passages, contrary to what he had written before, that he had sympathy towards "those who would minimize, rather than with those would maximize, economic entanglement among nations".
In recent literature, much attention has been paid to the effect of foreign direct investments on the growth of a country. In theory, according to the classical model, FDI should augment growth, as they introduce in a particular country new capital, which improves efficiency. In the endogenous growth theory, foreign direct investments are very important, because they bring new technologies and know how from the developed country to the host country, these factors, in turn, boost the economic growth of the hosting nation.
However, in practice, the presence of foreign direct investments has had a controversial effect in different countries. Indeed while some empirical studies have detected a positive effect of FDI on growth, others have found instead a negative relationship between these two variables.

Why does this happen? Mainly because of insufficiency of data in panel investigations, or due to the endogeneity problem: if FDI have a positive effect on growth, the nation will become wealthier after receiving the foreign capital, and due to the fact that it is richer, it will attract more and more FDI. So the two variables could have a possible interdependence, this requires a test for endogeneity, which has been neglected by many studies.
The following sections analyze some of the econometrics studies to capture a general trend regarding the relationship between FDI and growth.

The study conducted by Prasad, Rajan and Subramanian (2007)[25], tries to capture the relationship between current account balance [26] and growth. Before explaining their regression, it is very interesting to see what has been the world general GDP growth trend of countries with current account surplus and countries presenting a deficit.
From the following graph, it can be seen that countries with a surplus, at the beginning of the 1960s, were growing faster than deficit countries, in particular they experienced a growth peak in 1975 and in 1980. At a certain point, between 1985 and 1990, the two different types of nations converged and from 2000 onwards, excluding the years around 1995, the countries with a deficit experienced a higher growth than the other ones. This goes against all that what

Figure 6: Growth of surplus and deficit countries



Source: Prasad, Rajan, Subramanian (2007)

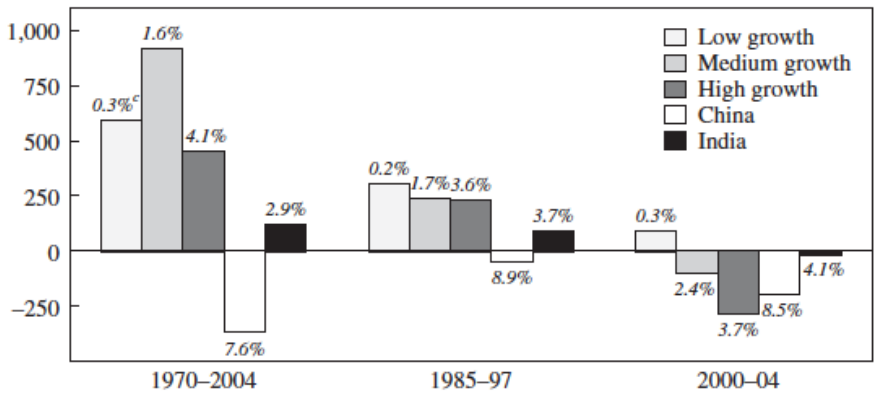
expected from the classical interpretation of macroeconomics.
In addition, contrary to what has been said in the neoclassical model, in the last decades, capital flows are running from the poor to the rich countries, this fact is called the 'Lucas' paradox, as Robert Lucas firstly pointed it out in 1990.
Normally, as Pierre-Olivier Gourinchas and Olivier Jeanne (2002) argue, capital has higher

[25] Eswar S. Prasad, Raghuram G. Rajan, Arvind Subramanian, (2007). *Foreign Capital and Economic Growth*, Brooking Papers on Economic Activity.

[26] Defined as a country's saving less its investment.

probability to flow to countries which have the best investment opportunities. But is this what happens in reality? The data show the opposite trend, the following graph, for example, shows the cumulative current account deficits of three groups of non-industrial countries separating China and India, over the period of 1970-2004. The histogram shows that capital flows towards slow growing countries, have been higher than those towards fast growing countries. China, for instance, shows to have a really high growth rate, and a small amount of foreign direct investments, so a current account surplus for each period.

Figure 7. Current account deficits



Source: Prasad, Rajan, Subramanian (2007)

Note: Current account surplus is shown as negative amount.

The low growth group, instead, show a significant current account deficit, which means that they received a large amount of FDI. However, if we examine this phenomenon in terms of FDI flows, we see that in general the investments have followed growth, with the exception of the last years. In fact, fastest growing countries have better investment opportunities.

Using data from the World Bank and the World Penn Tables, Prasad, Rajan and Subramanian (2007) constructed a regression that has as dependent variable the GDP growth rate, while as independent variable the current account balance-GDP ratio. The data cover fifty-six non-industrial countries from 1970 to 2004.

Table 8. Average annual GDP growth per capita and current account balance

Current account balance–GDP ratio	0.093
	(0.036)**
Log of initial GDP per capita	−1.770
	(0.242)***
Initial life expectancy	0.071
	(0.026)***
Initial trade policy[f]	0.987
	(0.782)
Fiscal balance–GDP ratio	0.044
	(0.041)
Institutional quality[g]	5.759
	(1.680)***

Source: Prasad, Rajan, Subramanian (2007) Note: *,**,*** mean statistically significant at the 10, 5 and 1 percentage level. Standard errors are reported in brackets.

In order to make the results of the regression more precise, the economists included some control variables: log of initial (1970) GDP per capita, initial-period life expectancy, initial-period trade openness, the fiscal balance, a measure of institutional quality, and dummy variables for Sub-Saharian countries and oil exporters.

The table suggests that current account balance and growth are directly proportional; in particular, a 1-percentage point increase in the current account balance increases average GDP growth per capita by approximately 0.1 percentage point. We can state this, as the coefficient on current account balance is statistically significant at the 5 percent level.

So countries that rely less on foreign investments have in general a higher growth rate than other countries, this goes against what is predicted by all the standard textbook models.

Being this results surprising, the authors checked for robustness, first by considering a different time period, between 1985 and 1997, considered the golden age for financial globalization; however the estimation results did not change significantly, as can be seen in the first column of the table below.

Secondly, as is shown in the column 2-2, they thought of including in the sample twenty-two more industrialized countries, to see if this effect is also attributable to them. In doing so, an interaction term was included in the regression: industrial country dummy x current account balance- GDP ratio. This means that if the dummy variable is equal to 1, so if we are considering an industrialized country, then the marginal effect on growth will be given by the coefficient on the independent variable (current account balance), plus the coefficient on the interaction term.

Thirdly, in column 2-3, they also included an interaction term considering instead twenty-one transition countries, however reducing the time period to 1990-2004.

Finally, they included an additional control variable, which is the working-age share of total population; that effect is shown in column 2-4.

Table 9. Current account balance and growth rate, using alternative samples

Independent variable	*2-1*	*2-2*	*2-3*	*2-4*
Current account balance–GDP ratio	0.221	0.105	0.203	0.069
	(0.102)**	(0.051)**	(0.121)*	(0.055)
Log of initial GDP per capita	−3.172	−1.795	−1.941	−1.644
	(0.436)***	(0.210)***	(0.657)***	(0.207)***
Initial life expectancy	0.191	0.078	0.175	0.048
	(0.059)***	(0.023)***	(0.060)***	(0.029)*
Initial trade policy[b]	1.391	1.036	0.538	0.679
	(0.800)*	(0.579)*	(0.437)	(0.573)
Fiscal balance–GDP ratio	0.102	0.035	0.122	0.051
	(0.091)	(0.031)	(0.071)*	(0.041)
Institutional quality[c]	7.794	5.144		2.812
	(2.338)***	(1.147)***		(1.348)**
Working-age share of total population				0.194
				(0.072)***
Industrial country dummy × current account balance–GDP ratio		−0.202	−0.234	
		(0.063)***	(0.115)**	
Transition country dummy × current account balance–GDP ratio			−0.354	
			(0.138)**	
Estimation period	1985–97	1970–2004	1990–2004	1970–2004
No. of observations	56	78	99	56
R^2	0.63	0.68	0.34	0.77

Source: Prasad, Rajan, Subramanian (2007)

Note: *,**,*** mean statistically significant at the 10, 5 and 1 percentage level. Standard errors are reported in brackets.

Having a look at the coefficients, very interesting results can be noticed: as said before, changing the time period and maintaining the same sample does not change things, in fact the coefficient on the independent variable is still positive and still statistically significant at the 5 percent level. By including the industrialized countries in the sample, instead, we note that the effect changes remarkably: indeed, the total marginal effect of current account balance on GDP per capita growth is -0.097 (0.105 – 0.202), a negative and statistically significant effect. In addition, if we consider transition countries, the effect becomes -0.151 (0.203 – 0.354), as column 2-3 indicates, it is also statistically significant at the 5 percent level. So the phenomenon of direct proportionality between current account balance and GDP growth is just isolated to non-industrialized countries, more developed and transition nations show instead a negative effect of current account balance on growth. In other words, for developed and transition countries, larger inflows of foreign capital boost growth, while for non-industrialized countries, the opposite effect is valid.

These general trends are confirmed if we observe the experience of poor countries growing very fast in the same period of interest. The growing poor countries, immediately after the growth spurt, experienced a high increase in the current account balance, and a level of savings higher than that of the investments; meaning that, as soon as they began to grow, they relied less and less on foreign investments an more on their own savings.

The coefficient of working-age population is positive and statistically significant at the 1 percent level, and we can notice that including this variable, the marginal effect of current account balance decreases by about 30 percent. This means that something related to domestic saving affects the results found.

4.3.1 What explains the observed relationship between capital flows and growth?

We have seen that the positive correlation between current account balance and growth is only a phenomenon that takes place in non-industrialized countries, so it could be reasonable to assume that there must be something inside these nations that is not present in the other ones, that affects growth in this way. In addition, in these considered countries, investments do not seem to be highly correlated with net a capital inflow, which is to say that when they experience a growth period and an increase in income, they tend to save more and rely more on their domestic savings than on the investments. This phenomenon, as suggested by Prasad, Rajan and Subramanian (2007), could be explained by the *institutional underdevelopment*, which characterizes the non-industrialized countries. Indeed, in a poor economy, the lack of an adequate financial system could prevent consumers from borrowing and could instead incentivize them to rely on their own savings. However, higher saving does not linearly mean higher investments, as underdeveloped economies usually have capacity constraints, which prevent the investment to be implemented well.

Another problem is related to the *property rights*, for instance in China many households tend to invest in domestic financial assets in the form of bank deposits, however the final holder of them is often the state government, not the households. The property rights problem, in addition, could prevent foreign firms to invest in the poor country, and this could explain why there is such a positive relationship between current account balance and growth. Also, the new firms that are emerging in these poor countries usually tend to rely less on the banking system and on the government, which means that their possibilities to take loans are restricted, and so also their possibilities to invest in new technologies, attracting foreign investments. So foreign capital is not directly harmful for non-industrialized countries, but it simply cannot be used properly, due to the fact that these countries present an institutional underdevelopment.

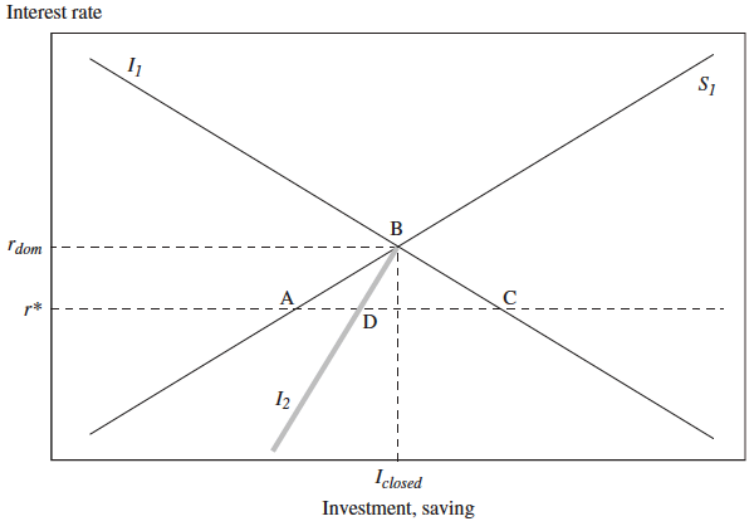
On the other side there are the more developed countries and the transition ones; they have a better financial system that allows consumers to borrow and to make investments at their will. As the productivity of one of those countries increases, income increases and so does investments, thanks to the developed financial system. On the other hand, savings may not be

as reactive to increases in productivity as in poor countries, leading to larger current account deficits.

According to a less benign view, suppose foreign capital has a deleterious effect on the growth of poor countries, for instance a significant inflow of capital could increase remarkably the wages of the domestic employees, leading to a general appreciation and to a reduction of the marginal product of investment. Or it could also happen that the domestic reliance on foreign goods increases, pushing up their prices and leading to currency overvaluation.

In view of these thoughts, the classical textbook model, which depicts investments and interest rates, must be modified, in the sense that the presence of foreign capital now increases the real exchange rate, making exports less profitable. For this reason, investments will decrease by an amount that depends on the inflows of foreign capital received. These trends are illustrated in the following figure:

Figure 8: Saving and Investment in an economy distorted by foreign capital inflows



Source: Prasad, Rajan, Subramanian (2007)

This graph is an extension of the classical model representing the equilibrium between investments and saving, in the presence of foreign capital. It is well known that above the level of the domestic interest rate, r_{dom}, no foreign investment will be accepted by the non-industrialized country considered. Below that interest rate, instead, foreign capital will flow inside the country. For each level of r*, there is an investment path at the left of the I_1 line, due to the negative relationship between foreign capital inflows and investments. The lower is

r*, the more to the left will lie the investment schedule of a particular country, because inflows increase if r* declines. If all these effects are sufficiently strong, the investments schedule will be represented by the line I_2, at the left of the initial equilibrium point B, and finding a new equilibrium in D. In this point there will be larger capital inflows with respect to B, but lower investments, lower domestic savings, and finally slower growth.
The country considered could think of increasing growth again by shifting the saving line to the right, so by increasing the saving rate. In this case the investments will increase again, the interest rate will increase, decreasing the foreign inflows.

4.3.2 Does foreign finance matter?

Until now it has been observed that foreign capital is not a good method of financing countries with an underdeveloped financial system, in order to investigate this relationship in a more detailed way, it is appropriate to focus the attention on some industry data, analyzing if industries with a higher level of foreign capital are better off or worse off than countries with little helps from abroad. It is overall interesting to see how this relationship changes with the level of financial development of a country.
Rajan and Zingales (2008)[27] constructed an econometric model to see if manufacturing industries that are more dependent on foreign capital, have a higher productivity in countries more open to foreign direct investments. In order to conclude something about this relationship, the two economists ran the following regression, which considers the ten-year periods from 1980 to 1990 and from 1990 to 2000:

Equation 6: Growth and openness to foreign inflows

$$G_{ij} = \psi + \zeta_1' C_j + \zeta_2' I_i + \zeta_3 man_{ij} + \alpha\left(open_j \times dep_i\right) + \varepsilon_{ij}$$

Source: Rajan and Zingales (2008)

Where G_{ij} is the annual growth rate of value added in industry i in country j, C_j controls for variables in each country, while I_i controls for variables in each industry, these two variables are used to lower the omitted variable bias problem; man_{ij} indicates the initial-period share of industry i in manufacturing in country j. $Open_j$ is the degree of openness of the country j to foreign capital, while dep_i stands for the dependence of country i on external finance, the two variables are interacted. Finally, the last term is the error term.
The objective of the study is to estimate the coefficient α. According to the classical model,

countries with a more open account should see their dependent industries growing faster than countries with a less open economy, so the coefficient should be positive.

The problem is again how could the openness of a country be defined. To address this question, the authors included five measures of openness: the ratio of the stock of inward FDI to GDP, the ratio of the stock of inward FDI and portfolio investments to GDP, the net flow counterparts of these two ratios, and the average current account deficit in the period considered.

Running the regressions without including the correlation with the financial development of a country, gives statistically insignificant results. Financial integration, the proxy used for the financial development of a nation, is a very important variable to include in the model, as it is very likely that countries that are more open also have a better financial system. In order to measure the financial development, it is used the variable $cred_j$, which is the ratio of domestic credit to GDP in country j, and it is also used another variable called gov_j, which instead represents the value of the corporate governance index for the same country. In addition, another dummy variable is included: $bmed_j$, equal to 1 if the country is below the median level of financial development.

Having added all these new variables, a new regression can be estimated:

Equation 7. Growth and FDI considering the financial development

$$\begin{aligned} G_{ij} = {} & \psi + \zeta_1' C_j + \zeta_2' I_i + \zeta_3 man_{ij} + \alpha_1 (open_j \times dep_i) \\ & + \alpha_2 (open_j \times dep_i \times bmed_j) + \alpha_3 (cred_j \times dep_i) \\ & + \alpha_4 (cred_j \times dep_i \times bmed_j) + \alpha_5 (gov_j \times dep_i) \\ & + \alpha_6 (dep_i \times bmed_j) + \varepsilon_{ij}, \end{aligned}$$

Source: Rajan and Zingales (2008)

If we assume that underdeveloped countries cannot use the foreign capital in an appropriate way, then the coefficient α_1 should be positive, and α_2 should be negative, as FDI in a country with a level of financial development below the median should have a negative effect on growth.

The results of the regression on the coefficients are very clear, indeed they specify what it has been expected: foreign capital decreases the growth of financially dependent industries in countries where the development of the financial sector is below the mean; whereas it boosts growth in countries with a high level of financial integration.

So it is clear that developing countries relying less on foreign capital have experienced a higher growth than other nations, however this comes with a cost: the level of investment and consumption are less than what they would be if these countries could open their economies.

5. The Chinese transition from an investment-led to a consumer-led economy

Having seen what determines growth in a country, and in which sense capital account liberalization and foreign direct investments implement growth, now we will look at the example of China. In particular, this last chapter is going to analyze first what characterized the Chinese economy before the reform, then how the economy proceeded after the reform, and in the end it will report the conclusions of this analysis on how openness affects growth.

5.1 The Chinese economy before the 1978 reform, looking at the past

In the past history, China has always had a dominant place in the world, economically speaking; in 1830 it accounted for the 30 percent of the world's manufacturing output. From 1850 on, the year in which Britain became the economic leader, China began to decline, not only because of the unfair commercial treaties imposed by the western countries, but also because of many conflicts and wars emerging inside China. After the mid 1800s, the central government had to give the power to a host of warlords coming from different countries, and only in 1949, the nation was unified again, under the communist party People's Army, led by Mao Zedong.

Before the reform of 1978, China was mainly a rural economy. The land was in the hands of the public sector; households were generally organized in production teams, which were in turn organized in brigades, which were in conclusion gathered into communes of 4000 or 5000 people. The objective of each commune was the self-sufficiency; each of them, indeed, had to produce everything that was necessary for the survival of itself. In terms of the nowadays concept of economy, which is to say the organization of scarce resources, this was totally inefficient. Mao was remarkably against trade and specialization, this is indeed what he declared in 1977:

Specialization is not a good idea. We do not suggest this even with respect to our own provinces. We advocate all-round development and do not think that each province need not produce goods, which other provinces could supply. We want the various provinces to develop a variety of production to the fullest extent…
The correct method is each doing the utmost for itself as a means toward self-reliance for new growth, working independently to the greatest possible extent, making a principle of not relying on others…[28]

[28] Mao 1977, 102-3; after Riskin 1987, 206

This statement is a very clear example of how the Chinese government used to see trade in general, and in particular trade between different countries: China had to use all its resources in the most comprehensive way, rejecting foreign technologies, in favor of accumulating domestic experience, relying only on domestic savings and on its own industries. People who favored foreign technology were reputed as having an unpatriotic behavior. This policy against openness was carried out because of two main reasons: to ensure to the nation a military security, and to depend less on foreign countries, technologically speaking.

China also had an industrial sector at that time, but it was disorganized and inefficient as the agricultural sector, as Deng Xiaoping said in the 1970s, the "redness" was more important than the "expertise". This means that everything was guided by an ideology, instead of by rational economic reasons. In addition, also in the industrial sector, specialization was completely excluded, in favor of self-sufficiency.

The main industrial products that they reputed as the ones that could lead to the national development and success were steel and energy. Oil production, in particular, was seen as a source of export earnings.

As regards the financial sector, prior to the reform, it was basically inexistent, as only the government had the power to manage the country's finance and to collect and redistribute taxes. The organ that was in charge of doing so was the People's Bank of China. In addition, it is important to note that, during the Maoist period, households were not given the right to hold money, but instead they had coupons, authorizations and orders to deliver. This fact means that prices were not important at all, in the economic policy of that time.

5.2 The Chinese economic imbalances

The political and economic conditions of China before the reform, as pointed out by Dorrucci, Pula and Santabarbara (2013)[29], were characterized firstly by a lack of organizational structure, which prevented China from having an efficient management of capital and an adequate supply of raw materials. Secondly, the country relied most of all on savings, they had a very high level of them thanks to demographical factors, thanks to the increasing amount of people in the working age, who had more possibilities to save. The level of saving was also affected by the underdeveloped financial system, which gave little opportunities to households to borrow and to firms to have an appropriate way of financing themselves.

[29] Ettore Dorrucci, Gabor Pula and Daniel Santabárbara (2013). *China's economic growth and rebalancing.* ECB Occasional Paper series, volume 142, pages 1-56.

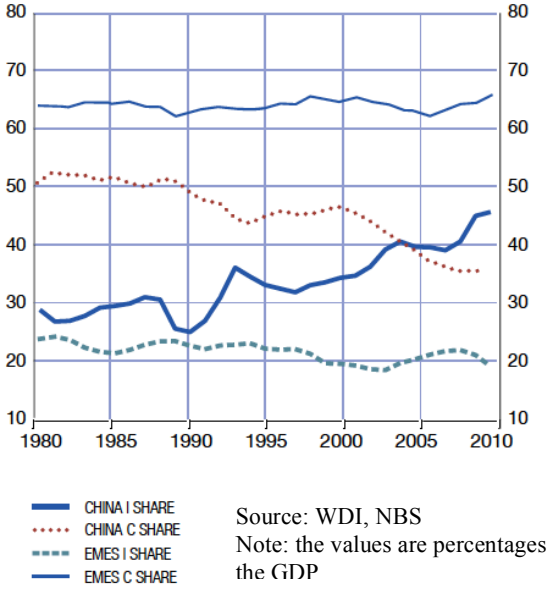
Thirdly, the capital accumulation that was happening thanks to the high saving rate was all dedicated to financing the agricultural sector, the main driver of China's growth. In addition, the large amount of people available to work, or the large labor supply, kept the wages at a low level, compared to the other nations. This fact attracted foreign investments, and ensured to China the access to new technologies brought by the other countries.

Fourthly, it must be pointed out that China suffered because of large economic imbalances, for instance the disparities among the private and the public sector. In particular investments by state owned enterprises (SOEs) were higher than those coming from the private firms, and significantly higher than those coming from foreign firms.

In addition, there has been and it is persisting also nowadays, another imbalance regarding the private consumption: household consumption is a very low part of the GDP of the country, this is due to the fact that the government makes conspicuous investments to implement growth, investments that mostly come from public and private savings. It is interesting to note that the government used to invest more remarkably, and keeps doing that also nowadays, in crises periods, as it did in 2008 and 2009.

This phenomenon can be seen from the figure number 9, which depicts the households consumption against the investments made by the Chinese government, compared with other emerging market economies (EMEs). Every value is expressed in percentage of the domestic GDP. As it can be seen from the graph, the share of investment by the Chinese government has always been higher than the investments of the other emerging market economies, and it has been increasing since 1980.

Figure 9. Private consumption vs. government investments for China and other EMEs



Source: WDI, NBS
Note: the values are percentages of the GDP

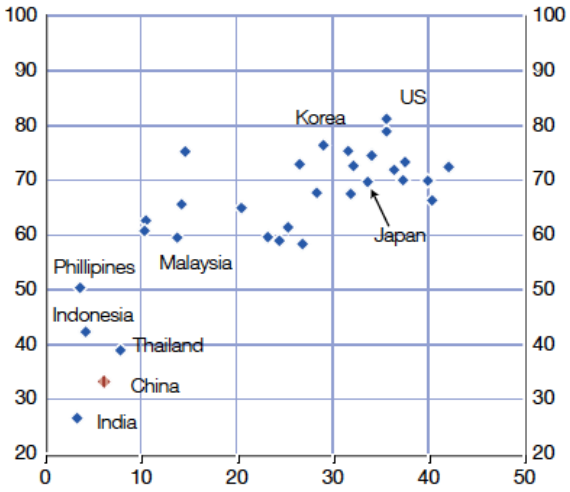
In addition, after the year 2000, the level of public investments as a share of GDP in China has surpassed the level of private consumption regarding the same state. In particular, the public investments reached the 45 percent of GDP, while the household's consumption dropped to the 35 percent of it.

Instead, as regards the other EMEs, the private consumption share has always been much higher than the public investments.

These trends are also continuing in the very recent years, meaning that there is currently no rebalancing of the two components.

An additional imbalance was represented by a too high reliance on the manufacturing sector, in particular on the agriculture, which detriment the service sector. This importance that was given above all to the manufacturing sector caused some problems to the economy, for instance the lack of difference in the jobs that citizens could practice, so the low level of the wages, and consequently the modest consumption.

Figure 10. GDP per capita and share of services employment



Source: WDI and NBS
Note: x-axis represents the GDP per capita in USD while the y-axis is the share of employment in services

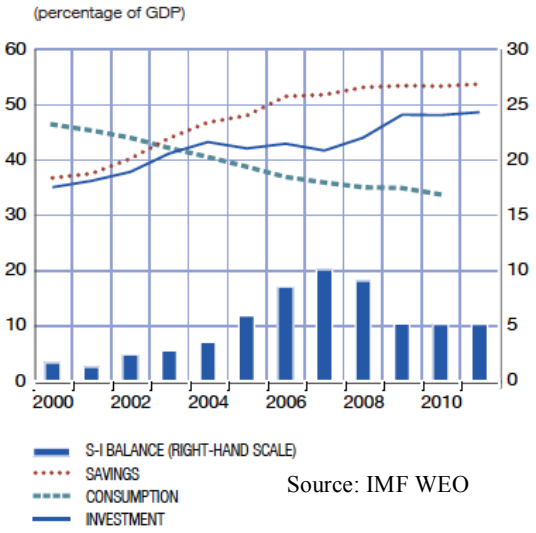
As it is shown in figure 10, China is still nowadays one of the countries with the lowest share of services employment.

However, it must be pointed out that now this trend has a minor magnitude, as since 1990, approximately 100 million of people have left the agricultural sector, and 130 million have moved from the countryside to the city. In total, since 1991, the service sector has created 150 million jobs. In 2010, the share of employment in services out of the total employment was 30 percent, a very low percentage if we compare it internationally.

As stated before, the Chinese economy used to have a current account surplus, as it did not import from other countries. However, since the reform, the government started to open the capital account, and if for example in 2007 the current account surplus was the 11.3 percent of GDP, in 2011 it decreased to the 2.7 percent. So China welcomed this new way of conducing the economy, and made an important contribution for a more balanced growth among the world economies. This is what the Chinese authorities declared, however, some evidence suggest that the decline of the current account surplus happened due to temporary factors: such as the movements of the external demand, the high demand for commodities given the large amounts of investments, the deterioration of trade, and the appreciation of the exchange rate. Ahuja et al. (2012) estimated that the terms of trade deterioration and the increase in the investment demand explained respectively -3.8 and -2.6 percentage points of the decrease in the current account surplus from 2007 to 2011. The effect of the changes in the external demand was smaller, -1.4, and the one caused by the appreciation of the exchange rate was -1.3 percentage points.

As regards savings and investments, the following chart explains that the decline in the current account surplus was mainly driven by an increase in the investments, rather than a decrease in savings. This means that the authorities have managed to make more and more investments, but on the other hand, their success to increase the households' consumption, as a percentage of GDP, was limited.

Figure 11. Saving and Investment shares



Source: IMF WEO

Continuing with these trends, China is very likely to reach again the past current account surplus in the following years. It might be that the behavior of households towards consumption has not changed yet, because China is implementing the reforms on social security, labor market and social housing, in a very slow way; some of these reforms have been implemented in 2008, not a long time ago, and mentality takes always a long time to change with respect to the politic and economic conditions of a country.

5.3 The opening up

The year 1978 came, and it was the time of the economic reform for China. The objective of the reform, as it is described by Jaggi, Rundle, Rosen, and Takahashi (1996)[30] was to reinvigorate the poor economic conditions of the nation, and the main way to reach this goal was by opening the country to foreign trade. China, in fact, in that period, imported many new technologies from abroad, causing great balance of payments problems.

In the first period of the reform, until the 1984, the government focused on agriculture: it increased the prices of their products, it relaxed the restrictions to foreign trade, and it introduced and incentivized specialization and diversification.

[30] Jaggi, G., Rundle, M., Rosen, D., & Yuichi, T. (1996). *China's economic reforms, Chronology and Statistics.* Washington, D.C: Working Paper 96 - 5, Institute for International Economics.

In the second period instead, until the year 1988, the industries were modified in such a way to attract foreign direct investments and to improve the technology level of them; in particular 14 major cities were opened to foreign firms.
In the third phase, lasting until the following three years, the economy was growing very fast thanks to the previous efforts. However, the inflation touched too high levels and many civil protests took place in this period, as the famous Tiananmen Square's protest of the spring of 1989, brutally repressed by the government.
The fourth phase of the reform, finally, began in 1991 and it is still going on now. It is characterized mainly by the opening up of the nation, but also by the more market-oriented economy that they created, and by a trend towards liberalization.
In this last period, China's reforms for liberalization were centered on physical and human capital accumulation. For instance, the centralized organization of labor in the agricultural sector was relaxed, and this reform allowed many workers to move away from the country and to find a job in the industrial sector, or to initiate an agricultural activity by themselves, as in the case of the birth of township and village enterprises (TVEs). Before the 1978, in order to ensure independence from the rest of the world, China used to make a great number of investments in the agriculture and in the industries, this explains the investment rate of 26 percent prior to the year of the reform. At the same time, the prices of the products were highly controlled and there was just little return on production, while after abandoning this strategy, the people involved in the TVEs found an increase in income for them.

In addition, another important set of reforms was aimed at giving more power and responsibility to the local governments in the process of economic development. This was made thanks to a revenue sharing agreement in 1985, for which local governments were given responsibility to collect taxes through earnings of the TVEs[31] . Since these TVEs were formed and in part owned by local authorities, the incentive was high to promote investments for higher returns on capital.

Also the fiscal system was changed: in the sense that the central government gained the revenue collection, while leaving local government responsible for the majority of public and social expenditure including health and education[32] . The sudden lack of revenue collection in

31 Jaggi, Rundle, Rosen, & Yuichi (1996)

32 McKay, H., & Song, L. (2012). *Rebalancing the Chinese economy to sustain long-term growth.* Rebalancing and Sustaining Growth in China, 1-18.

favor of the local government resulted in an immediate budget deficit for them, which accounted for -3 percent of the GDP.

5.3.1 Industrial emergence and foreign trade

From the two sets of reforms discussed above, it becomes evident that enterprises in the industrial sector have been the main beneficent of China's structural change since the opening-up era. In addition, within the fiscal area, the Chinese enterprises were allowed to retain a larger proportion of profits than prior to the reform, and they were also encouraged to take on credits instead of relying on their own retained earnings. Since 1988, private firms were allowed to operate, but only as a complement to the socialist economy.
Despite the initial success that these new policies brought to the industrial and manufacturing sector, in the early 2000s, the economy fell in an overinvestment, overall in the construction materials, such as steel, cement, aluminum and coke. An overinvestment caused by the very high profits, brought to the economy by the large domestic demand, which came from urbanization and industrialization. However, since the investments in this type of sector generally take a long time to be implemented, they were ready for the market only when the demand had decreased. As a consequence, prices and profitability decreased.

As regards foreign trade, China started to implement a more open account since 1990s, when the central government decided to encourage foreign direct investments, as well as the exports. In order to attract foreign investments, they created special tax concessions and also liberalized land leasing, policies that were previously only allowed in some regions of Southern China.

5.3.2 Capital controls and the internationalization of the RENMINBI

The high level of capital controls in China is useful to prevent the domestic savings to flow abroad, and to ensure that the domestic liquidity conditions are under the fixed exchange rate regime. However, capital controls prevent competition and also are an obstacle to the country's financial development.
On the other hand, Chinese authorities declared that they are going to pursue an internationalization of the Renminbi, but how could they achieve it with the presence of strict capital controls? The government is promoting an international use of the renminbi, proposing it in the offshore markets, but always in a very controlled manner, even though they are aware

of the fact that a more open account is the most important precondition to ensure that their currency will be internationally used. In the absence of this precondition, China will continue to represent an unusual place in history, which is to say that it is one of the strongest economic powers of the world with a weak global currency.
To achieve a more open capital account, China should implement more reforms, overall in the banking and financial system.

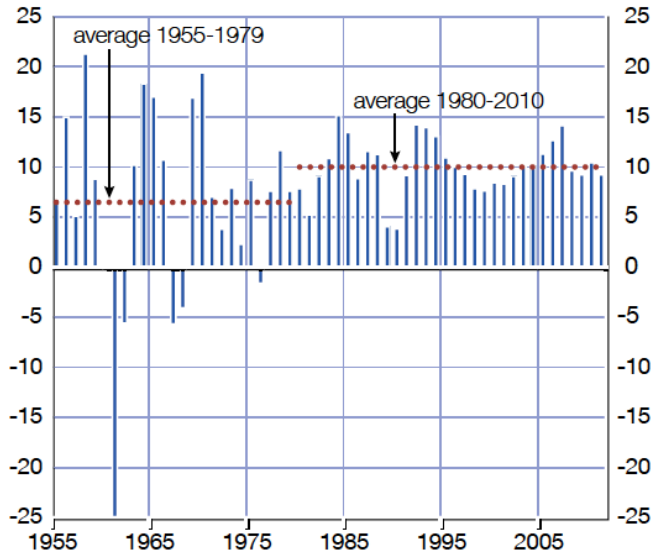
Despite the fact that the overall growth plan of China has been successful so far, and that the economic and social conditions of it have remarkably improved after the reform, the monetary policy of the country has remained basically the same as before.
In conclusion, some facts still remain: first of all, they promote free trade, but then they implement strict capital controls and financial repression, even in the domestic markets. Secondly, China has always tried to manage the interest rate, keeping it low, and thirdly, the fact that Chinese authorities seek for monetary policy autonomy remains.

5.4 The Chinese economic performance, looking at the present and at the future

China has experienced an incredible growth rate in the last decades, as the figures suggest. This growth was led mainly by three factors: first of all by the robust capital accumulation, thanks to the current account surplus; secondly by a strong increase in the labor productivity, determined by the large amount of people moving from the agricultural to the industrial sector in the last three decades; and thirdly, the intense growth was driven also by a rapid increase in total factor production (TFP), resulted from the progressive liberalization of the state controlled economy after the reform of 1978.

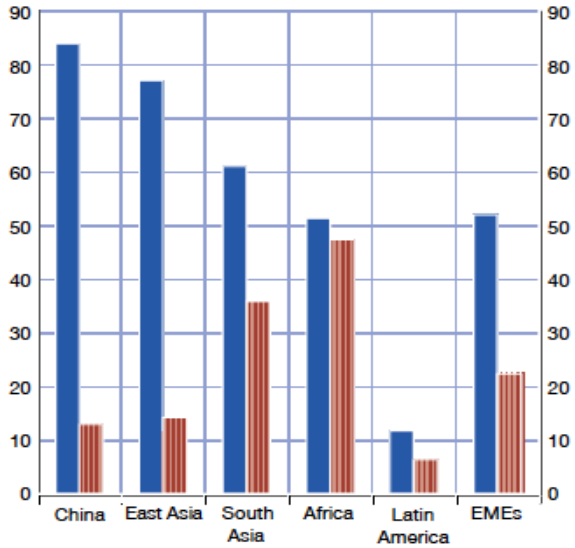
The data suggest that, in fact, average GDP growth rate was of about 10 percent during the 1990s and the 2000s, and it is projected to be of 8.6 percent during the next five years.

Figure 12. China's real GDP growth



Source: NBS
Note: the number expressed in percentages.

Figure 13. China's poverty ratio



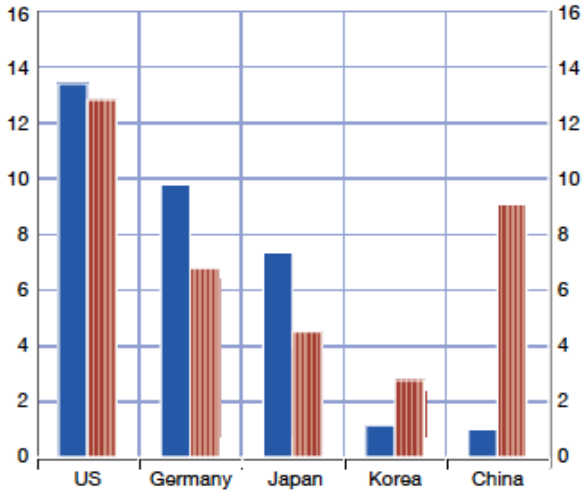
Source: WDI
Note: the blue indicates the 1981 values, while the red refers to 2008.
The numbers are the percentages of the population living with less than 1.25 USD per day.

In figure 13, instead, we can observe how the poverty ratio has dramatically decreased from 1981 to 2008. People living with less than 1.25 US dollars per day were 80 percent of the population in 1981 (blue column), while in 2008 they were 13 percent (red column). China's

economic development has indeed managed to lift around 600 million people out of poverty during these years.

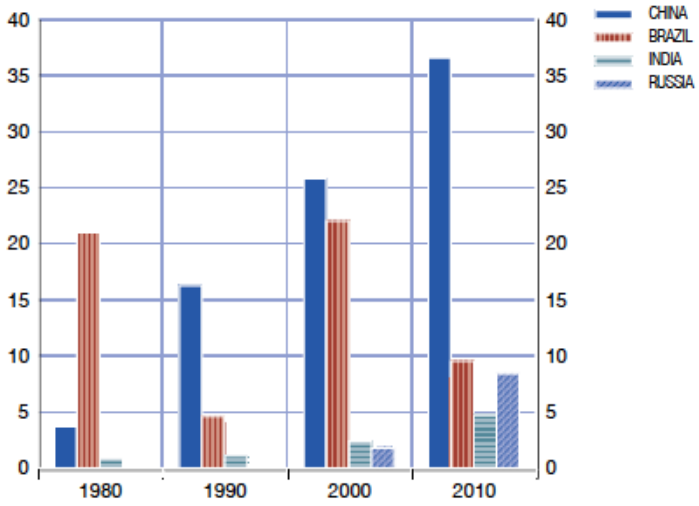
The Chinese opening up has also managed to increase significantly their world market share, and the FDI flows have also started to increase steeply, as can be seen from the figures below. Inward FDI flows were in fact less than 5 percent of total FDI flows towards developing countries in 1980, while in 2010 they account for almost the 40 percent.

Figure 14. World market shares



Source: IMF DOTS
Note: the blue color refers to the year 1980, while the red to the year 2010.
The measure is of imports from countries as percentage of world imports.

Figure 15. Percentage of total inward FDI flows towards developing countries



Source: WDI

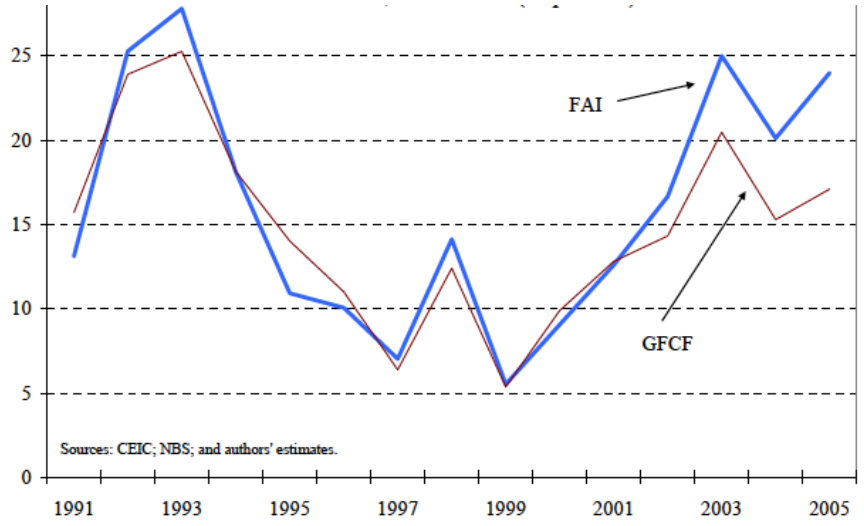
5.4.1 Chinese investments

Investment, as one of the main drivers of GDP growth in China, has grown rapidly during the last years, reaching the 40 percent of the GDP. In particular, half of the total fixed assets investments are financed from internal funds of enterprises, which are mostly state-owned. Being state-owned means that they don't have to distribute the dividends to the state, instead they can reinvest the earnings. This practice is adding to the current investment boom, but does not show a very efficient reallocation of resources. The share of foreign funds is instead very low, and it has also declined over the last decade.

The main threat for China is that the rapid investment growth, united with the weakness of the financial system, and the corporate governance of the state owned enterprises, could lead to an excess capacity and to a deflation.

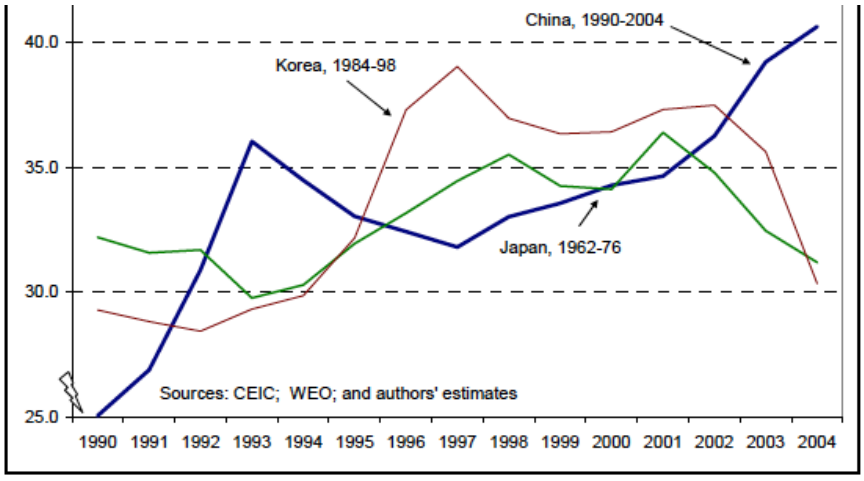
The following picture depicts the main investments facts regarding China during the last few decades. GFCF is the gross fixed capital formation, growing at around the 20 percent in recent years, while the FAI is the fixed assets investment, which was growing by 30 percent per year. In particular, the NBS estimated that in 2004 the GFCF-to-GDP ratio was 40.6 percent.

Figure 16. Real investment growth, 1991-2005 (in percent)



These investment ratios are very high, compared to other nations, in fact in the recent years no OECD or emerging market economy presented a ratio higher than 30 percent. In fact, as this other figure shows, even if compared to Korea and Japan, the investment ratio of China in the recent years is way higher.

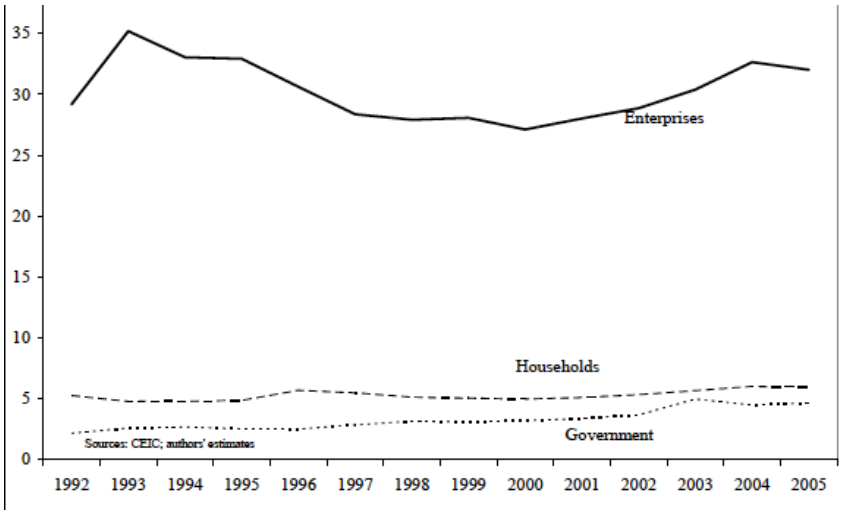
Figure 17. Investment-to-GDP ratio (in percentage)



The increase in investment in the recent years, has led to an increase in the capital-output ratio, while a decrease in the marginal product of capital. This suggests that although it is still high, the efficiency of capital is declining. As said before, the large amount of investments

have been an important determinant of the GDP growth; in particular on average, over the last years, nominal GFCF has explained about half of the nominal expenditure-side GDP growth.
But who has the power to invest in China? Mainly the government, the enterprises and the households. The following graph is explicative of the amount invested by each component.
As it can be seen from the graph, the enterprises account for three quarters of the total investments, accounting for half of the 5 percentage points of GDP increase in investment since the late 1990s.

Figure 18. Gross investment by sector (in percentage of GDP)



The majority of the enterprises are constituted by state owned enterprises, indeed, SOE accounted for two-thirds of the enterprises investments in 1990, but by 2004 their share declined to just over one-third. This means that the private sector is beginning to have relevance in China; its share of industrial output was indeed one quarter of the total output in 1998, but it increased to more than a half by 2003. Foreign-invested enterprises (FIEs) account for a small percentage of the total investment.
After the enterprises, there are the investments coming from the households, whose investments are mainly in housing, and they accounted for the 14 percent of total investments in 2005. However they only contributed for one seventh to the increase in total investments since 1990. Government investments, instead, represent only one tenth of total investment, but grew by almost 2 percent of GDP since the late 1990s.

All these investments that led the country to a rapid growth, were mainly driven by own domestic funds, the so called "self-raised" funds, coming from the enterprises', the government's and the households' savings.
Gross domestic saving, in fact, was on average the 41 percent of GDP over the past 15 years.

The following table shows, in percent of total, where the funds used for the investments come from.

Table 10. China: financing of urban and rural fixed asset investment

	1999	2000	2001	2002	2003	2004	2004 Urban 1/	2005 Urban 1/
	(In percent of total)							
State budget	6.2	6.4	6.7	7.0	4.6	4.3	4.3	4.4
Domestic loans	19.2	20.3	19.1	19.7	20.5	18.3	20.4	18.8
Foreign Capital	6.7	5.1	4.6	4.6	4.4	4.4	4.3	4.2
Self raised	53.4	52.2	52.4	50.6	53.7	55.7	51.4	54.5
Other sources	14.4	16.0	17.3	18.0	16.8	17.2	19.6	18.1

Source: CEIC

As it can be seen from the table, the self raised funds are the highest percentage of the total funds raised by China to make the investments possible, however this does not exclude the fact that the country allows a small percentage of foreign capital to come in.

5.4.2 China and its investments abroad: Pirelli's acquisition

Having said how, after the reform of 1978, the high saving rate has allowed the Chinese economy to make many important investments inside the country, in order to increase the standards of living od the population, it must be pointed out that China is looking further as well. In fact, it has been investing also abroad. One of the most important examples of this phenomenon is the well-known acquisition of the Italian Pirelli, by the state-owned enterprise ChemChina.

This firm has bought the majority of the shares of the Italian 142 years old Pirelli, for the price of 7.1 million of euros.

ChemChina is a Chemical firm with revenues of 36 billion of euros, it was born in 2004 as an extension of the SASAC (State owned Assets Supervision and Administration Commission). It is owned by the State, whose president is Ren Jianxin. This firm has already opened 140 stables in different countries and it is planning to grow even larger. ChemChina has understood that the only way it can be in competition with the most important international firms is to innovate. This is the reason why it is investing a high sum of money in the research and development. ChemChina has already bought Adisseo, Qenos, Elkem and Makhteshim Agan.

6. Conclusion

This thesis shed light on the debate that deals with the way in which a relatively open economy could grow faster and better than a closed one. It has done so by first discussing the fundamental drivers in the growth theory and afterwards by addressing the analytic and econometric models developed by the most important scholars.

The textbook model was useful to understand how the countries grow, and to identify the main sources of progress, in particular the technology acquisition. The first analytical analysis, dealing with the relationship between savings and growth, was very important as it explained the growth pattern of some countries with a closed account and distant from the technological frontier, such as China. In fact, as stated in the last chapter of this study, it was thanks to the savings that China could make such a large amount of investments, and implement its growth.

Moreover, by analyzing the effect of a sudden stop or a current account reversal on the growth of a country, some evidence suggest that countries with a high capital mobility will experience a deeper fall in growth with respect to other countries with a lower mobility.

As the example of China has demonstrated, developing countries have finally managed to reach a growth path, overall thanks to their savings, coming either from the private households or from the government. Chinese households, in particular, used to save large amounts of money, as their consumption possibilities were limited. In fact, in China public investments have always been higher than private consumption levels.

Little investments, in terms of foreign trade, have been carried out in these non-industrialized countries. In relation to this, an econometric study (Prasad, Rajan, Subramanian, 2007) demonstrated that, as regards non-industrialized countries, the higher their current account surplus, the higher their growth rate. Consequently capital coming from abroad can be considered detrimental for the development of such countries, not because it makes them more dependent from an external economy, but mainly due to the fact that they do not have the appropriate financial system and institutions to deal with the inwards FDI.

As a consequence of that, many countries as China have managed to grow in the decades relying most of all on the internal savings, and making their economy self sufficient. Since the reforms of 1978, and of the following years, China has been trying to open its capital account, and to compete, technologically speaking, with other countries; this is demonstrated by looking at the Pirelli's acquisition example.

In conclusion, from the econometric studies analyzed in this thesis, it can be affirmed that if a country finds itself with an underdeveloped financial system, with inadequate institutions, and with unstable politic conditions, then foreign trade and capital account openness will not

improve its growth. Instead, when this country finds a way to create better standards of living for its households, by investing in the institutions and in the financial system, then foreign direct investments will have a remarkably positive effect con the development of the country.

Bibliography

Alessandro Borin and Riccardo Cristodoro, (2014). *Gli investimenti diretti esteri e le multinazionali*, Banca d'Italia.

Antràs, P., & R Yeaple, S. (2013). *Multinational firms and the structure of international trade* (No. w18775). National Bureau of Economic Research.

Assaf Razin, Efraim Sadka (August 2006). *Foreign Direct Investment: Analysis of Aggregate Flows.* Princeton University Press.

Barba Navaretti, G., & Venables, A. (2006). *Facts and issues, from multinational firms in the world economy.* Princeton University Press.

Barnett, S., & Brooks, R. (2006). *What's driving investment in China?* Washington D.C : IMF Working Paper.

Bekaert G. (1995). *Market Integration and Investment Barriers in Emerging Equity Markets* World Bank Econ Rev (1995) 9 (1): 75-107.

Bekaert G., Harvey C., Lundblad C. (2011). *Financial openness and productivity.* World development, volume 39 (1), January 2011, pp. 1-19.

Blanchard, O., & Johnson, R. D. (2013). *Macroeconomics.* Harlow, Essex, England: Pearson Education Limited.

Ding, S., & Knight, J. (2008). *Can the augmented Solow Model explain China's Economic Growth? A cross-country panel data analysis.* Oxford University.

Dunning, J. H. (1994). *Re-evaluating the benefits of foreign direct investment.* Transnational corporations, *3*(1), 23-51.

E. Borenstein, J. De Gregorio, J. Lee (1998). *How Does Foreign Direct Investment Affect Economic Growth?* Journal of International Economics. Volume 4, pages 115-135.

Eswar S. Prasad, Raghuram G. Rajan, Arvind Subramanian, (2007). *Foreign Capital and Economic Growth*, Brooking Papers on Economic Activity.

Ettore Dorrucci, Gabor Pula and Daniel Santabárbara (2013). *China's economic growth and rebalancing.* ECB Occasional Paper series, volume 142, pages 1-56.

Gabriel Wildau, Emily Cadman, Yuan Yang and Luke Kavanagh, (2016). *The Chinese economy at a glance,* Financial Times. Retrieved from: https://ig.ft.com/sites/numbers/economies/china.

Geng, X., Yang, X., & Janus, A. (2009). *State-owned enterprises in China: Reform dynamics.* In R. Garnaut, L. Song, & W. T. Woo, China's New Place in a World in Crisis: Economic, Geopolitical and Environmental Dimensions (pp. 155-178). Canberra: ANU Press, Brookings Institution Press, Social Sciences Academic Press.

Gourinchas, P. O., & Jeanne, O. (2002). *On the benefits of capital account liberalization for emerging economies*. World Bank conference, Financial Globalization: A Blessing or a Curse, May (pp. 30-31).

Harberger, A. (1998). *A Vision of the Growth Process*. The American Economic Review*, 88*(1), 1-32. Retrieved from http://www.jstor.org/stable/116816

J. Aizenman, B. Pinto, A. Radziwill (2007). *Sources for financing domestic capital – is foreign saving a viable option for developing countries?* Journal of International Money and Finance. Volume 26, pages 682-702

Jaggi, G., Rundle, M., Rosen, D., & Yuichi, T. (1996). *China's economic reforms, Chronology and Statistics.* Washington, D.C: Working Paper 96 - 5, Institute for International Economics.

Jeffrey D. Sachs, Andrew M. Warner, (1995). *Economic convergence and economic policies.* National Bureau of Economic Research.

Jeffrey A. Frankel, David Romer, Teresa Cyrus (1996). *Trade and growth in East Asian countries: cause and effect?* National Bureau of Economic Research.

Joseph E Stiglitz (2000). *Capital market liberalization, economic growth, and instability.* World development, Volume 28, Issue 6, pages 1075-1086.

L. Alfaro, K. Sebnem (2005). *Why doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation.* National Bureau of Economic Research Cambridge, Mass., USA. Volume 33431, pages 1-89

M. Amin Almfraji, M. Khalid Almsafir (2013). *Foreign Direct Investment and Economic Growth Literature review from 1994 to 2012.* Procedia (2014). Volume 129, pages 206-213.

M. Ayhan Kose, Eswar S. Prasad and Marco E. Terrones, (2008). *Does Openness to International Financial Flows Raise Productivity Growth?* International Monetary Fund.

McKay, H., & Song, L. (2012). *Rebalancing the Chinese economy to sustain long-term growth.* Rebalancing and Sustaining Growth in China, 1-18.

N. Gregory Mankiw, Mark P. Taylor, (2007) *Macroeconomia*

N. Gregory Mankiw, David Romer, David N. Weil (1990). *A contribution to the empirics of economic growth.* National Bureau of Economic Research.

P. Aghion, D. Comin, P. Howitt, (2006). *When does domestic saving matter for economic growth?* National Bureau of Economic Research.

Rani Singh (November 8th 2015). *The World's richest countries.* The Forbes. Retrieved from http://www.forbes.com/sites/ranisingh/2015/11/08/new-study-finds-a-better-way-to-measure-the-worlds-richest-countries/#6144c5896b82

Ross Garnaut, Jane Golley and Ligang Song (2010). *China: the next twenty years of reform and development.* The Australian National University E Press.

S. Barnett, R. Brooks (2006). *What's Driving Investment in China?* IMF Working Papers. Volume 06, pages 1-39

Sebastian Edwards, (2007). *Capital Controls, Sudden Stops, and Current Account Reversals*. Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences.

Stock, J. H., & Watson Mark M. (2012). *Introduction to Econometrics.* Edinburgh Gate: Pearson Education Limited.

World Bank. (2015, May 4). *World Development Indicators.* Retrieved from World Bank Data: http://databank.worldbank.org/data/views/reports/tableview.aspx#

World Bank. (2015). *World DataBank.* Retrieved from World Development Indicators: http://databank.worldbank.org/data/views/reports/tableview.aspx?isshared=true

World Bank. (2016). China Overview. Retrieved from: http://www.worldbank.org/en/country/china/overview#1

Xiaoying Li, Xiaming Liu, (2005). *Foreign Direct Investment and Economic Growth*: *An Increasingly Endogenous Relationship*. World Development Vol. 33, No. 3, pp. 393-407.