Impact of Financial Repression on FDI in Iran

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ABSTRACT

This thesis has investigated the impact of financial repression on FDI in Iran from 1965 to 2005 through Johansen Cointegration tests. The thesis has empirically investigated the determinants of FDI in Iran while testing for the impact of financial repression on FDI in the country. Overall, the findings obtained in this thesis for the conventional determinants of FDI are mostly in line with the existing theories in the literature. The results suggested that that capital, market size, trade openness, and Research and Development (Technology) have a positive statistically significant impact on FDI. On the other hand, inflation and financial repression are significant with a negative coefficient which means that these two variables have a negative impact on FDI. An interesting result of the thesis is that human capital and labor are not significant in the cointegration models. This has shown that the status of the human resources in Iran is not instrumental in attracting direct investment from overseas, which can be attributed to low productivity of the labor in Iran.

Keywords: FDI, Iran, cointegration, financial repression

ÖZ

Bu tez İran'daki Doğrudan Yabancı Yatırımların belirleyicilerini araştırmak ve finansal baskı politikalarının Doğrudan Yabancı Yatırımları ülkeye kazandırma sürecine istatistiksel olarak anlamlı bir etkisi olup olmadığını 1965 ve 2005 yıllarını kapsayan yıllık verilere dayanarak Johansen eş-bütünleşme testi ile araştırmayı amaçlamaktadır. Johansen eş-bütünleşme testi sonuçlarına gore sermaye, piyasa büyüklüğü, ticaret açıklığı, ve Araştırma Geliştirme faaliyetleri İran'daki finansal kalkınma sürecini olumlu etkilemektedir. Öte yandan, yine Johansen eş-bütünleşme testi sonuçlarına gore finansal baskı endeksi ve enflasyon'un İran'daki finansal kalkınma sürecini olumsuz etkilediği sonucuna varılmıştır. Tezin ilgi çekici bir sonucu olarak insan sermayesi ve işgücü İran'daki Doğrudan Yabancı Yatırımları istatistiki olarak anlamlı şekilde etkilemediği tespit edilmiştir. Bu sonuca göre, insan sermayesi ve işgücü'nün İran'a Doğrudan Yabancı Yatırımları çekme konusunda belirleyici bir faktör olmadığı ortaya çıkmaktadır, ki bu sonuç İran'daki işgücünün verimliliğinin düşük olması ile izah edilebilmektedir.

Anahtar Kelimeler: Doğrudan Yabancı Yatırımlar, Finansal Baskı, Eş-Bütünleşme, İran

I dedicate this thesis to my family, especially…

To my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake.

To my mother, who taught me that even the largest task can be accomplished if, it is done one step at a time.

To my love who has been a great source of motivation and inspiration.

To My brothers who have always supported and encouraged me from near and afar.

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Chapter 1

INTRODUCTION

Iran is a rich country in Middle East in terms of resource and labor. The economy of Iran is extremely dependent on the production and export of petroleum or crude oil in order to finance government expenditures, and Iran's economy is highly affected by variation in global oil prices (Ilias, 2010).

After Saudi Arabia and Canada, Iran has the third leading crude oil reserves in the world, and the second greatest gas reserves, after Russia. Likewise, Iran has the second largest economy in Middle East and North Africa after Saudi Arabia. Furthermore, it has the second largest population after Egypt (see Table 1). However, Iran economically deals with important challenges. The revenues which are earned from exporting crude oil have a significant impact on finance government expenditures, and hence Iran's economy is highly affected by variation in global oil prices (Ilias, 2010).

Furthermore high unemployment and inflation rate; lack of efficient decision making in economic management environment; level of poverty and Iran's dependency on fuel imports to meet domestic demand, would be considered as internal challenges (Ilias, 2010).

Table 1: Iran Country Overview

Indicator	**Description**
Land Area	1.6 million square kilometers
Population	72.9 million (2009 estimate)
Median Age	27 years (2008 estimate)
Capital	Tehran
Life Expectancy at Birth	71.43 years (2009 estimate)
Gross Domestic Product (GDP) at Price Purchasing Parity	$876 billion (2009 estimate)
GDP Real Growth Rate	2.6% (2009 estimate)
GDP Per Capita	$12,900 (2009 estimate)
GDP Composition by Sector (Current Prices)	services, 44%; Industry, 45%; agriculture, 11% (2009 estimate)
Unemployment Rate	12%, reported by Iranian government (2009 estimate)
Population Below Poverty Line	18% (2007 estimate)
Inflation Rate (Consumer Prices)	17%, official Iranian estimate (2009 estimate)
Exports	$70 billion (2009 estimate)
Export Commodities	Petroleum 80%, chemical and petrochemical products, fruits and nuts, carpets
Imports	$57 billion (2009 estimate)
Import Commodities	Industrial materials; intermediate goods and other consumer goods

Sources: Central Intelligence Agency (CIA), THE WORLD FACTBOOK May, 2010; IMF, Direction of Trade Statistics, World Bank data indicator 2011.

The present thesis aims to explore the effect of financial repression policies implemented in Iran on the Foreign Direct Investment (FDI) that the country receives. Financial repression policies will be captured by an index of financial repression which is prepared by Taghipour (2009) and is used by Nejad (2010) and Banam (2010). This index will be used in the econometric models to measure its impact on FDI. Traditional determinants of FDI will also be used in econometric models alongside the financial repression index.

The remaining parts of this thesis are organized as follows: The next chapter is about overview of Iran's economy. Chapter 3 will cover the concept of financial repression and foreign direct investment (FDI). Chapter 4 will survey related literature. Chapter 5 will prepare the theoretical framework. Chapter 6 will introduce the data and the methodology which is used in this thesis. Chapter 7 will provide the empirical results, and chapter 8 will point out the conclusion.

Chapter 2

THE ECONOMIC REVIEW OF IRAN

Iran's economy is vulnerable to changes in global oil prices, which is caused by international economic recession. Iran's capacity to raise funds for investment and trade is limited; as a result of country's small share in international markets (Ilias, 2010).

Before 2000 Iran had a good economic growth. But this growth has been impeded because of high unemployment and inflation rate and falling foreign direct investment. They have to seek foreign investment to expand their petroleum sector (Ilias, 2010).

In the last decade the price of oil was dramatically high (see Figure 5); under these circumstances, Iran's leverage increased due to high oil prices and interacting with global issues, and then Iran's economy slowed down caused by the dependency of Iran's economy on petroleum (Ilias, 2010).

Financial repression due to Iranian government policies, laws, regulations and other restrictions together with Iran-Iraq war and the 30 years of sanctions levied against Iran could be consider as a significant factors and reasons of Iran's economic downturn in post-revolutionary period.

2.1 Iran-Iraq War, Eight Years of Unbearable Costs and Economic Downturn for Iran (1980-1988)

One of the most significant phenomena which have a very negative impact on Iran's economy took place in October 1980 by Iraq attacks on Iran's borders. Falling global oil prices between 1982 and 1986 (see Figure 1), along with the war resulted in critical circumstances for Iran's economy. Decline in foreign exchange earnings and incremental trend of borrowing from banking system due to government compulsion are the result of impact of subtractive international oil prices and the war (Salarpour, 2007).

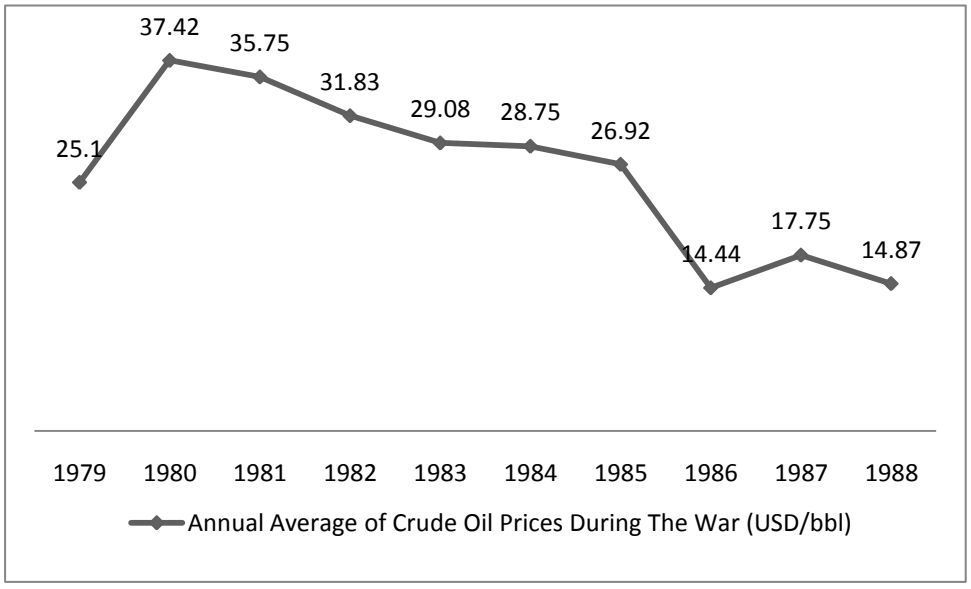

Figure 1: Annual Average of Crude Oil Prices During The War (USD/bbl)
Source: InflationData: Historical Oil Prices Table. Retrieved 2011

Iran's economy was shocked by reduction in oil revenues; this decline was occurred caused by the Iran-Iraq war, revolution and unfavorable circumstances in petroleum global market. These factors made a significant decrease and high unpredictability in crude oil revenue (Mazarei, 1996)

From 1979 to 1988 money supply was increased about 18 percent by the government and due to this change the annual rate of inflation attained 28.7 per cent (worldbank, 2011) at 1988 (see Figure 2). Reduction in per capita income, high inflation rate and incremental rate of unemployment are the achievements of first decade after the revolution (Salarpour, 2007).

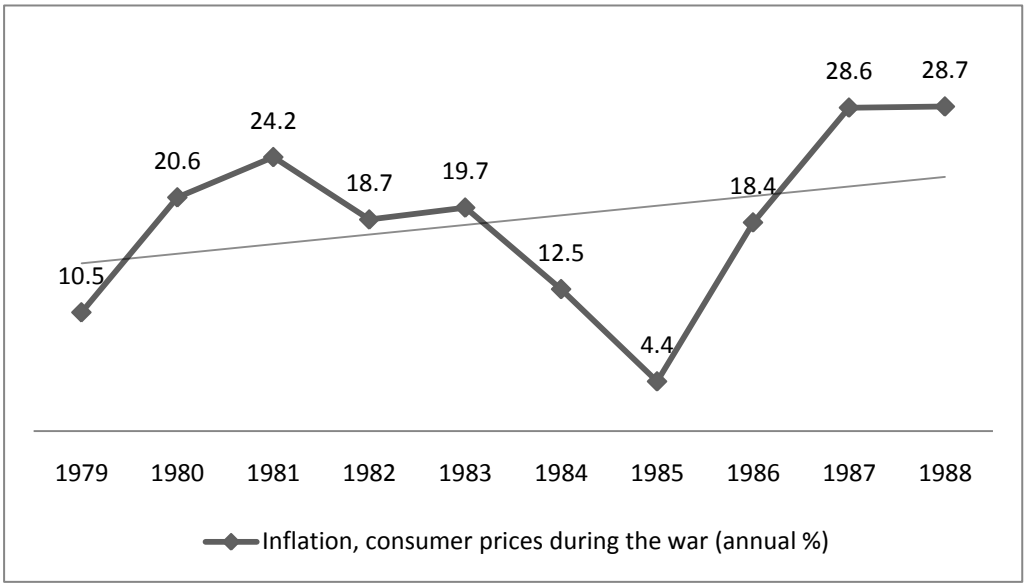

Figure 2: inflation, consumer prices during the war (annual %)
Source: Word Bank (2011), World Development Indicators (WDI) & Global Development Finance (GDF)

The cost which is inflicted on the Iran's economy through the war was very high. Some part of country was highly destructed. Devastation of part of the country, insufficient foreign exchange reserves, evacuation of labor resources and direct decline in production, are the factors that contributed in imposing this cost on the economy (Mazarei, 1996).

Furthermore, Mazarei (1996) stats that the main cost of the war for petroleum industry at that time was interruption of the continuous progress of exporting crude oil, and also large number of oil installations was devastated during the war.

2.2 Iran's Economic Analysis after Revolution in terms of Socioeconomic Indicators

The Islamic revolution in 1979 has a significant effect on Iran's economy and policy, likewise made an entire change on modernity in political issues and economic history. During Iran-Iraq war (1980-1988), Iran encountered reduction in petroleum production, high inflation rates and slowing rate of real economic growth compared with 1960s and 1970s. During this period Iran's economy boomed (see Figure 3). During this period Iran was one of the world's strongest economies in terms of real economic growth, and has real economic growth rate close to 10%, together with increment in per capita income and depreciated level of inflation (Jbili.A., Kramarenko, & Bailén, 2007).

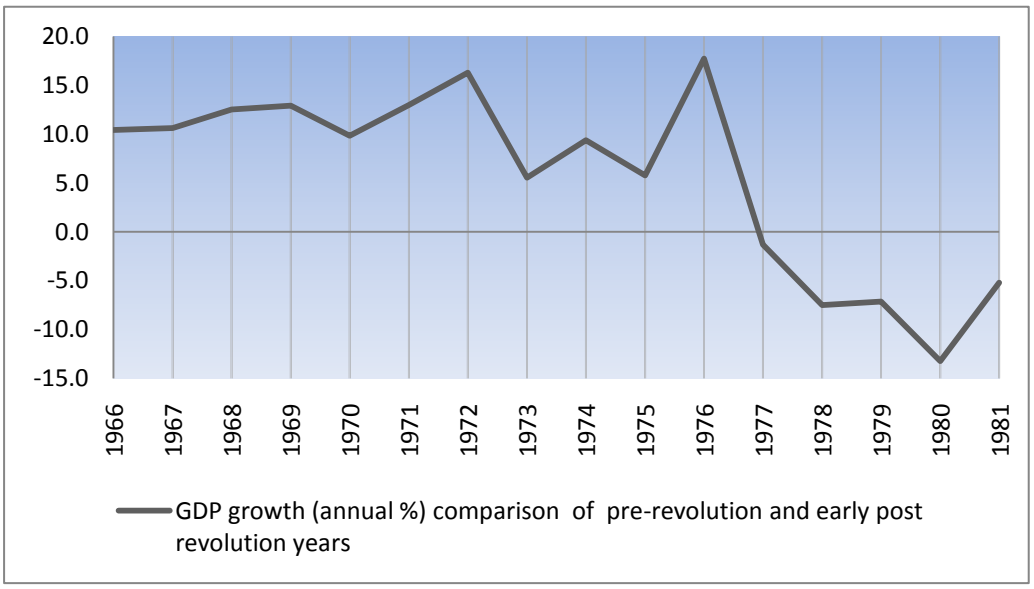

Figure 3: GDP growth (annual %) comparison of pre-revolution and early post revolution years

Source: Word Bank (2011), World Development Indicators (WDI) & Global Development Finance (GDF)

Production of goods and services declined in first decade after revolution till to the end of war. After the war due to the increasing in trend of production process, the

GDP per capita shifted to an increasing trend in 1988 and this upward trend except 1993 and 1994 which in this two years Iran's GDP faced the negative growth (see Figure 4) continued till 2007 (Zangeneh, 2010).

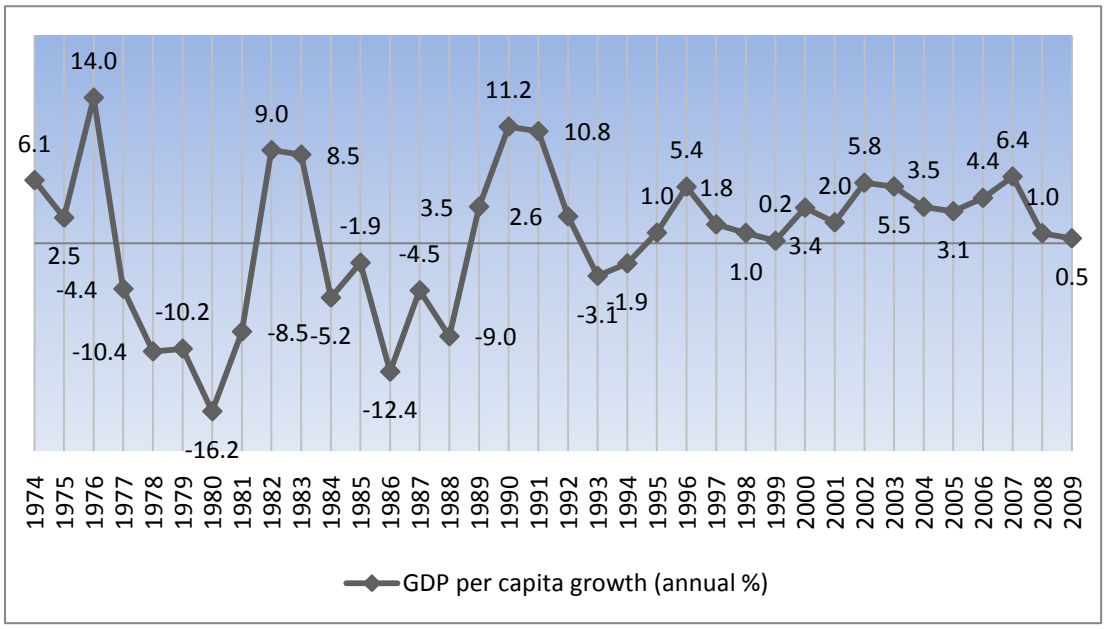

Figure 4: GDP per capita growth (annual %)
Source: Word Bank (2011), World Development Indicators (WDI) & Global Development Finance (GDF)

Most significant factor which led to a decrease in income was Iran's engagement in the war. Economic downturn caused by falling international oil prices in mid-1980s could be considered as another important factor. Another factor is the decline in Iran's purchasing power. The other factors happened due to reduction in country's oil revenues. Iran's oil revenue fell to $9.673 billion in 1988 (Zangeneh, 2010).

Zanganeh (2010) also mentions that the insufficient public and private investment would be considered as a cause for low GDP. Isolation of Iran from global market and hit-or-miss monetary policies are demonstrated as other significant reasons for weak growth rate and low GDP.

As clear from Figure 4 the level of GDP after revolution started to move down in 1979 till 1982-83 which in these two years the GDP was recovered to its pre-revolutionary grade but the life of this shining was too short and again per capita GDP shifted to the subtractive trend. During the Iran-Iraq war (1980-1988) Iran's economy experienced pretty negative GDP peaking in 1980 by -16.2 (see Figure 4).

After Iran-Iraq war throughout the 1990s, Iran attempted to renovate the local production which is devastated by war, liberalize trade, raise overseas and international relations, absorb foreign investment, and finally, design an economic plan under name of five-year economic plan to reallocate wealth throughout these series. Decrease in global oil prices, considering recovery in oil output, lead to Iran's economic recession in the second part of the decade (Ilias, 2010).

In 2009 Iran faced a weak economic growth (see Figure 4), due to reduction in global oil prices which is occurred in late 2008 (see Figure 5), restricted petroleum savings in terms of revenue because of downturn international economic trend and effect of mismanagement in domestic economic area.

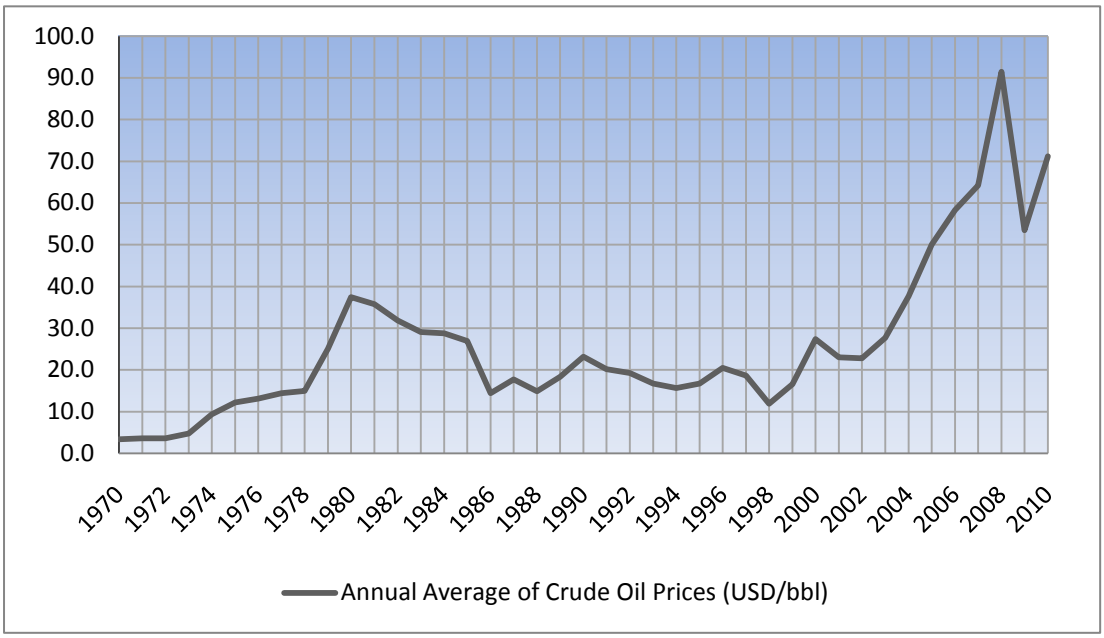

Figure 5: Annual Average of Crude Oil Prices (USD/bbl)
Source: InflationData: Historical Oil Prices Table. Retrieved 2011

As obvious in the Figure 4, Iran experienced an expansive economic growth at the former part of the decade, and also dramatic yearly change in real GDP with the pinnacle in fiscal year 2007.

At that time, Iranian government used economic growth as a source of financing in order to cover government expenditure on priority sectors, private consumption, fiscal and monetary policies enlargement and enlarged the growth in terms of credit. In recent years, increased global petroleum prices does not have a noteworthy impact on Iran's economy to achieve a good level of economic growth as much as the low level of investment caused by weak domestic business environment and the sanctions levied against Iran (Ilias, 2010).

Chapter 3

FOREIGN DIRECT INVESTMENT (FDI) POLICIES AND FINANCIAL REPRESSION IN IRAN

3.1 Foreign Direct Investment

The function of Foreign Direct Investment for improvement of emerging economies is pretty significant. Developing countries occasionally declared significant distrusts about FDI, because they are worried and felt doubt and apprehension about social, economical and political results of foreign investment. The conflict which appeared between the goals of foreign and national corporations, inflicted diversity of restricted policies in order to protect themselves (IFC, 1997).

Global integration improved performance of the economies by the help of foreign direct investment. FDI create a link between labor markets and also capital markets through increasing in wages and capital productivity in countries which are recipient. The approaches of developing countries about FDI have changed by comprehending the huge cost of isolation from international economic prosperity (IFC, 1997).

According to the international finance corporation (1997), foreign investment can be divided in to two: Direct investments and portfolio investments. Through portfolio investment, enterprise in case of equity takes benefits from risk sharing, and gain from finance. The additional gains can earn from direct investment in order to improvement of investment productiveness. Following benefits can bring through

direct investment: improvement in management method can provide by engagement in management, owners of technology by attain some authority in control of management allow the partner to have an access for technology, provide a best link for markets and marketing knowledge would be accessible.

According to the United Nations (2003) in the dynamics of economic globalization portfolio investments play a significant role. There is no proof comparing inflows of portfolio investments into Iran with other countries since such investment is not authorized for foreign investors in Iran.

It's obvious that the task of FDI is not just a finance flow, but also the operational link can be providing between foreign and domestic partners through FDI.

The level of passion in benefits maximization through FDI and reduce destructive side effect is so high for the governments. Government restrictive policies in economic area, laws, and other restrictions like, huge costs of regulation, lack of efficient structures for the projects and tax incentives resulting in fiscal losses lead to create a massive reduction in terms of benefit and make additional costs of FDI. Liberalization removed restrictions; each country that has liberalized can take more benefit dealing with FDI (IFC, 1997).

FDI flows will drive continuously in each place which it has an open economic environment, to respond to globalization concept. Foreign and domestic firms are getting close together and the distinction between them going to blur rapidly through the globalization (IFC, 1997).

In the 21th century by reducing the economic isolation and distance we can consider the world as a global village. There is no barrier for investment; multinational corporations (MNCs) expand their projects and investments around the world. The MNCs willing to invest in each country which is having capacity for investment and feasibility support (Dost et al , 2010).

Inflow of FDI in USA in 1993 was $200 billion whereas in 2000 it reached $1.3 trillion. FDI works like a conveyer which transfers the wealth from country or region to another country or region. Nowadays each developing country which has a higher economic growth rate would be able to attract the investor, investment and finally the wealth from developed countries because of FDI. The developing countries FDI inflows in 1980 were $132.9 billion, but after one decade this amount reached to $1438.48 in these countries, and this shows the incremental trend of FDI flows in the world at that time (Dost et al , 2010).

3.1.1 FDI History in Iran

Before 1931 immense overseas powers controlled foreign direct investment in Iran in areas like as mines and natural resources. Under this situation a negative image of foreign investment was established for the country (Sarfaraz, 2002).

The lackluster performance of FDI dramatically changed in 1955 by authorizing a law for encouragement and absorption of foreigners to invest in Iran. In 1956 by implementation of this law foreign investor's willingness to invest in Iran increased. Registration trend of companies with foreign shareholder started to go upward. In 7th of May, 1962 foreign direct investment was further encouraged by establishing a center to protect and promote foreign investors (Sarfaraz, 2002).

Number of Iranian companies registered with foreign stockholders was increased 1,641 from 1956 to 1978. But the foreign direct investment shifted to the decreasing trend after 1978, and this downturn continued till 2000 (see Figure 6). After 2000, Iran's foreign investment growth started upward but as can be observed in Table 2 Iran's FDI has been historically low due to some barriers and obstacles which are imposed by international sanctions and political regime (Sarfaraz, 2002).

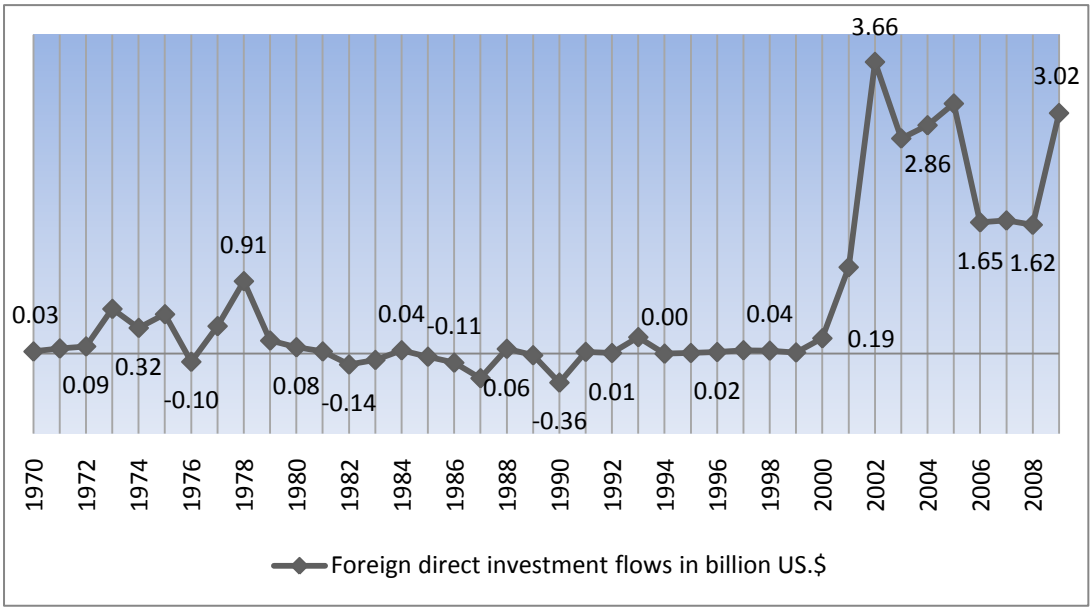

Figure 6: Foreign direct investment (FDI) flows in billion US. $
Source: United Nation Conference on Trade and Development (UNCTAD) 2011
http://unctadstat.unctad.org

Since Iran is one of the most densely populated countries in the Middle East and the rich in term of natural resources, potentially have a large marketplace for overseas businesses. Conversely, rate of foreign direct investment in Iran has historically been considerably low compared to most of the other countries in the region (see Table 2). The mixture of structural and political components is the reason of this failing in FDI (Ilias, 2010).

Table 2: FDI Flows in Iran and Selected Other Countries

Country	**2006**	**2007**	**2008**
Iran	1.6	1.7	1.6
Turkey	20.2	22.0	18.2
Saudi Arabia	18.3	24.3	38.2
Egypt	10.0	11.6	9.5

Source: Foreign Direct Investment online data base United Nations Conference on Trade and Development (UNCTAD)

Government unwillingness to permit foreign investors to invest and tough domestic regulations has declined the contribution level of foreign investment in Iran. Iranian buy-back policy was limited foreign investment in the energy sector. Through this scheme, global oil corporations have to pay fee under contract with an Iranian associate such as a "prerogative to gas or oil from development process". Buybacks were planned to catch up $500 million in 2006 (IMF, 2007).

Iranian institutions components have withstood foreign investment. On the other hand, Iranian authorities have promoted foreign businesses to come into the Iranian domestic market. Nevertheless, quasi-state performers like *bonyads* have been prevailed lots of business contracts (Ilias, 2010).

Iran's economic condition dampened due to International sanctions and uncertain political circumstances. Under this economical condition foreign companies and investors have been cautious about economic engagement in Iran (Ilias, 2010).

3.1.2 Economic Circumstances and Obstacles

United Nations Conference on Trade and Development (UNCTAD) reports that there exist three kinds of global corporations: resource seeking, market seeking, and those desires efficiency. Market size, growth rate of the market and per capita GDP are the most significant factors for corporations which are looking for the market. Vast population, petroleum reserves along with strategic and geographical location in the Persian Gulf region creates an advantage for Iran to be a good choice for investment (Sarfaraz, 2002).

Cheap raw materials and workforce as well as expert employees are the advantages for corporations which are looking for assets and resources in Iran. However, the country has major barriers in terms of creativity, technical asset, and innovation, along with infrastructures such as communication, ports and roads. In terms of efficiency Iran is not as much attractive for companies which are looking for it (Sarfaraz, 2002).

Market structures obstacles such as protectionism along with monopolies in main industries, associated with lack of efficient money as well as lackluster performance of financial markets resulted in decline in foreign investor's willingness to invest in Iran (Sarfaraz, 2002).

3.1.3 Political Risk

Lack of security has been a significant obstacle for investment in Iran. Risk of investment in Iran is one of the highest between large numbers of countries. During the decade thousands of Iranian enterprises were established in United Arab Emirates especially in Dubai, and this is a portentous indication of pretty high investment risk and wealth flight (Sarfaraz, 2002).

3.2 Financial Repression

Government's intervention in financial markets through determines the limit for the interest rate of bank deposits, high rate of legal reserves, involvement in the distribution of bank credit, limiting laws and regulations for current account and capital account, lead to decrease in interest rates and force it to come down to the level which is lower than inflation rate, this situation Resulting in negative real interest rates. This situation in economic literature is known as financial repression.

Ito (2008) states that series of legal laws and regulations, as well as other non-market limitations force the financial intermediaries to avoid performing at their complete capacity within economy. Financial repression is highly related to these laws and regulations, on the other hand financial repression was made out of them.

Liquid assets ratio requirements, interest rate ceilings, high bank reserve requirements capital control strategies, constraints on penetration to the financial segment as well as restrictions on channels of credit distribution or credit ceiling, and government possession or banks supremacy are the policies which results in financial repression. The fact that is highly mentioned by economists is that the power of financially repressive policies to prevent the efficient appropriation of capital and as a result of that harms economic growth (Ito, 2008).

The concept of financial repression was expressed for the first time by McKinnon (1973) and Shaw (1973).

Despite the fact that in theoretical manner an economy with a well-organized and competent financial system can attain development, growth and prosperity out of

effective and efficient capital appropriation process, McKinnon and Shaw ratiocinate that historically the level of competition is very low in financial markets and they have limited competition in the financial sector with regulations and government intermediation (Ito, 2008).

Consistent with their argument, a restrained financial sector is lead to decrease in both investment and saving as returns on investment (ROI) are lower than rate of profit could be achieved in a competitive market. In this scenario, financial intermediaries do not operate at their maximum possible capacity and be unsuccessful to invest saving efficiently. This failing can be a barrier for overall development in economic system (Ito, 2008).

3.2.1 Fundamental Reason for and Categories of Financial Repression

Having power over fiscal resources is the major rationale for the governments to adopt repressive financial policies. Complete authority together with direct control on financial system can play a role like a conveyer for the government, where government would be able to convey funds to itself without engaging in parliamentary procedures. It would be cheaper for government to use this system compared to resorting to financing through the market (Ito, 2008).

The aim of government from limiting the activities of potential and present contributors of financial markets is to provide monopoly or put a ceiling on rents of the banks and moreover tax a number of these payments in order to finance its total budget. In order to assurance their united domination positions the present banks may attempt to be in cahoots with each other by purpose of preventing implementation of potential liberalize policies in domestic market (Ito, 2008).

Policies which are stimulated by government monetary requirements and resulted in financial repression contain high cash reserve ratio or high reserve requirements, liquidity ratio requirements, liquid assets ratios, interest caps or ceilings, and government commands on the trajectories of credit.

3.2.2 Notes on Repressive Policies

3.2.2.1 High Cash Reserve Ratios

Some governments make revenues out of this policy by oblige banks to pay high rates of reserve requirements. Inherently reserves produce no interest. Combination of reserve requirements with interest caps and government commands in order to protect specific borrowers, impose a massive tax on savers who are uninformed about requirement policy. Therefore reserve requirements create the monopolistic authority for government to earn and increase its revenue (Ito, 2008).

3.2.2.2 Liquid Asset Ratios

Liquid asset ratios or liquidity ratio requirements make an obligation for the banks to appropriation specific portion of their deposit in order to preserving government securities. Rate of return in this process is much lower than market rate of return (Ito, 2008).

3.2.2.3 Interest Caps or Ceilings

Government could be able to control banks interest rate which is suggested to borrowers through imposing ceiling on it. Interest ceiling role is same as price controls and resulted in economic rents. The benefits of those rents are imposed pressure on banks and also create an advantage for government by preparing tax resources. The number of available loans is reduced by interest caps in the market. Also rate of saving and investment was faced downturn and declined due to lower interest rate of saving and higher interest rate of loans. Savers are sacrificed with

implementation of interest ceilings in countries which have high inflation levels (Ito, 2008).

3.2.2.4 Government Commands on Credit Allocation

Governments use this method to implement their policy in industrial area. Under government directives force, banks should allocate credit to specific industries which are strategically significant and in line with government industrial policy. Furthermore, government commands consist of detailed instructions and regulations imposed on managerial subject of financial establishments to make sure that their performance and business is corresponding to industrial policy as well as other political regime's strategies (Ito, 2008).

3.2.2.5 Capital Controls

One of the restrictive financial policies is capital controls. Under this policy capital outflows and inflows are restricted. Implementation of this method is able to create costs. Capital controls are resulted in financial autarky, and then lead to increase in cost of capital. In particular capital controls limits the ability of domestic and foreign investors (Ito, 2008).

3.2.3 Impact of Financial Repression

Incompetent appropriation of capital, costly intervention of financial intermediaries in financial market and weak rates of return to savers are all the result of financial repression, considering these negative evidences we can say financial repression theoretically restrain economic growth (Roubini and Sala-i-Martin, 1992).

The potential harmful effect of financially repressive policies on economic growth does not imply that countries must accept a pro market approach on financial development and take away all set of laws, regulations and various controls that make financial repression (Ito, 2008).

For the reason of the external impair that financial liberalization introduces or expands, a lot of developing countries which has liberalized their financial systems, partially experienced financial crises. Financial liberalization can make short-term instability in spite of its long-term achievement (Schmukler Kaminsky Graciela and Sergio, 2002)

In addition, because of market defect and information irregularity, removing all common financially repressive regulations may not provide a most advantageous environment for financial development. A good substitute for financially repressive management would be an innovative series of regulations to guarantee market competition along with carefulness regulation and control (Ito, 2008).

Chapter 4

LITERATURE REVIEW

4.1 Foreign Direct Investment (FDI) Review of Literature

Nowadays, in changing economic environment of the world, one of the most important components to motivate the economic growth of under developed countries is foreign direct investment (Dost et al, 2010). FDI improves the domestic capital structure of host country. This also implies production in large scale, which creates benefits for country in specialization in addition to economies of scale, also raising the amount of export and opportunities for unemployed skilled workers (Sawkut et al, 2007).

Additionally, foreign direct investment can be an origin of valuable technical knowledge while promoting the growth of local firms and improve the economic growth of host country. Derived from these arguments, developing countries are looking for improving FDI performances (Alfaro, 2003). About the fundamental factors that create inflows for foreign direct investment; there exist numerous theoretical and practical surveys evidences.

Investor's conceptions recently changed about investment. Foreign direct investors had lots of passion to invest in minerals and agriculture in early20^{th} century, it means level of desirability to these determinants was high at that time but during the time situation changed nowadays, these determinants are still important but the priority

has changed due to industrialization and globalization. FDI moves to the place that there is cheap and educated labor force with efficient stock market and country risk is not high (Dost et al, 2010).

Dirk (2004) analyzed the relationship among regional integration and foreign direct investment in under developed countries. He mentioned that under developed countries after regional integration of their economies, have drawn large amount of foreign direct investment. G.Agiomigianak (2006) has shown that, trade openness, educated and skill workforce, GDP, competition, market size, have significant role in improving the level of FDI in countries. Rabin and Rajan (2006) have noted that there are two factors in investigating of FDI inflows components in South Asia. The demand part determinants and supply part determinants. In demand part, his attention was to focus on market size, country's population, trade openness as components of foreign direct investment. While in supply part, he specialized work force, literacy rate, and efficient financial markets as attractive components of FDI.

Research in the 1982s (Kravis & Lipsey, 1982) reached a conclusion that there is a relationship between foreign direct investment and higher level of labor force wage. They mentioned that the effect of higher level of labor force wage on FDI happens just in labor-intensive industries. On the other hand, studies such as Moody and Wheeler and Mody (1990), Wang and Swain (1995), Lucas (1993), Barrell and Pain (1996) have shown that higher level of labor force wage is an important determinant in FDI. Because higher level of wage rate can motivate employees and lead to high level of productivity, as a result, high technology and research base fields require well-educated and expensive labor force.

The concept of explaning FDI behavior in light of the macroeconomic variables like inflation, national GDP as well as exchange rate, which are stimulators of foreign direct investment movements from multinational enterprises (MNEs), has been recently developed by Lens and Franklin (2004).

MNEs are interested in investing in those countries, where institutional environment gap among host and home country are low. As a result, governments should put emphasis on making policies for the developing institutional conditions for attracting FDI in their country. Zhang (2006) investigates the role of infrastructure in developing country in drawing FDI inflows to the country. In addition, Yih Yun's (2000) work suggested that trade openness is a significant indicator in increasing inward FDI in Australia.

Zaman and Shumaila (2006) provide an extensive survey about labor cost, inflation, market size, and trade balance and their important role in improving the level of FDI in Pakistan. After that, there come some political factors. Li (2008) and Dupasquier and Osakwe (2006) demonstrate that FDI inflows and military conflicts have an inverse relationship with each other and have a suppressive effect on FDI inflows of country.

Slater and Bende-Nabende (1999) examine both the short-term and long-term positional determinants of foreign direct investment under the large groups of cost-related, and other macroeconomic determinants in Thialand.

Similarly Dar et al (2004) explore the long- run theoretical relationship between FDI, economic growth and other socio-political determinants like political stability,

literacy rate, and political freedom in Pakistan and studied their impact on FDI inflows in years between 1970 -2002.

Nicolini and Artige (2005) focus their attention on analyzing the components of foreign direct investment inflows in three groups of European regions. First, they Overview the FDI trends and discuss the significance of the macroeconomic determinants in improving inward FDI level such as income, productivity of labor force, etc. After that, they recognize the main potential components of foreign direct investment. They show that FDI distribution differs across different regions.

As Shrestha and Onyeiwu (2004) clearly point out in their paper, following factors have an important role in attracting FDI inflows to Africa: economic growth rate, inflation, trade openness as well as availability of natural resources. On the other hand, in their survey, infrastructure was considered as an irrelevant determinant in attracting foreign direct investment to Africa.

Shah Abadi and Mahmoudi (2006) examined important factors, which had an impact on level of Iran's FDI during 1959- 2003. they found that FDI inflows in Iran depends on: infrastructure, inflation, availability of natural resources, corruption in bureaucratic system, human capital, market exchange rate, market enlargement , country's economic growth rate , and trade openness. The estimation of the existing model represents that availability of natural resource, trade openness in economy, human capital and infrastructures have an affirmative effect on foreign direct investment in Iran.

4.2 Financial Repression Literature

Analysts, such as Shaw and McKinnon in (1973), model conclude that financial repression reduces the amount and quality of total investment; therefore, financial liberalization can foster economic growth by increasing investment and its productivity. The McKinnon and Shaw model implicitly assumes that banking institutions operate under perfect competition with perfect information (McKinnon, 1981; Fry, 1980).

However, Courakis (1984) and Demetriades and Luintel (2001) argue that the structure of banking system in many developing countries is not competitive and show that Departure of the benchmark model from perfect competition has significant implications for the way in which repressive policies Affect financial development.

Hellmann et al. (2000) argue that in an environment of informational imperfections, financial liberalization might affect the stability of the banking sector. They show that financial liberalization considering great banking sector competition and the deposit rates ceiling removal can undermine prudent bank behavior and may lead to excessive risk taking by banks and therefore increase financial fragility.

Demetriades and Luintel (2001) provide the practical survey about the relationship among financial restraints and financial development in South Korea. They find
An affirmative relationship between financial deepening and the level of direct control over the banking sectors system combined with making suppression in level of bank lending process , confirming the view that government intervention in the financial sector can increase country's economic growth rate by directly influencing

financial development. However, their results are not the same as McKinnon-Shaw's claims about financial repression. He state that these have a negative effect on country's economic growth rate.

While Demetriades and Luintel (1996a, 1997) in another study for the case of India over the period 1961–91 find that a severe financial repression negatively affects financial deepening. Furthermore, for the case of Nepal they find that all interest rate controls seem to have a positive effect on financial deepening whilst non interest rate controls seem to have a negative effect (Demetriades and Luintel, 1996b).

The same line of research followed by Arestis et al. (2002) studied on the effect of some financial constrains , such as interest ceiling in deposit and lending process of banking sector, and reserve requirements and liquidity ratio on development of financial sector in six developing countries: Greece, Thailand, Philippines, Korea, India and Egypt. They provide evidence that the effect of financial policies differ significantly among the countries. Hachicha (2005) finds that in the long and short run, financial repression had important and negative impact on financial development in Tunisia. The similar result also obtained by Ang and McKibbin (2007) for the case of Malaysia.

Chapter 5

THEORETICAL FRAMEWORK

5.1 Determinants of Foreign Direct Investment (FDI)

Determinants of FDI can be divided in two approaches: First uses firm-level data, such as labor costs, openness, and industrial concentration. The second uses aggregate, country- level data. To discover determinants of FDI in this thesis we use cumulative stocks of FDI in Iran. In other words, in our empirical work the industry-level method is not used. It should be taken to consideration that data availability controls the choice of descriptive variables. For instance, in the existing literature natural resource intensity, labor cost, the corporate tax rates have also been used but we had to keep them outside this thesis due to data availability issues.

Theoretically, we can list possible determinants of financial development FDI as financial repression, infrastructure, human capital, market size, trade openness and inflation. A number of these variables have an affirmative effect and some of them have a harmful influence on foreign direct investment. For example, in theory, trade openness, and economic growth is supposed to have an affirmative influence on foreign direct investment, whereas inflation and financial repression is supposed to have a harmful impact on FDI. The possible impact of these factors on financial development will be reviewed in this chapter.

5.1.1 Inflation

High level of inflation is one of the major problems that all enterprises which working in Iran encounters, regardless of whether they are local or global corporations. Iranian economy impairs with high inflationary situation in last three decades. Bennaceur and Ghazouani (2007) and Boyd et al (2001) empirically, and Huybens and Smith (1999), theoretically, examine the effects of inflation on financial development. They found that economies with higher inflation rates are expected to have smaller, less active, and less efficient equity markets and banks. Furthermore, inflation raises inflationary expectations, promotes capital outflow, and discourages decisions for private activity. Therefore, it is theoretically expected that inflation repels FDI.

5.1.2 Trade Openness

Trade Openness improves FDI. This claim is a standard assumption (Hufbauer et al, 1994). In the literature, the proportion of trade over GDP is considered regularly as a determinant of trade limitations and also frequently explicated as a determinant of country's openness. We consequently inspect the effect of openness on FDI with considering of Trade/GDP in the regression. Theoretically, it is supposed that trade openness have a positive effect on financial development.

5.1.3 Market Size

Market size and the prediction of country's economic growth in place that FDI is located, are also significant factors of foreign direct investment. Economically, it is supposed that if the country has a large market, it can grow fast and consequently the investors would be able to use and enjoy from their investments in that country. Now if the society has rationally well spending or the country has a high rate of per capita

GDP, it would suggest that, the foreign direct investors would experience vast outstanding performances.

In FDI decision-makings host country's market size is one of the essential factors, which as well indicates the economic environment of host country and the possible demand of their production too.

Furthermore, Scaperlanda and Mauer (1969) mention that FDI responds to the market size optimistically when FDI achieves an intensity level, which is as big as to permit efficient employment of resources as well as economies of scale. In several prior practical surveys like Wheeler and Mody (1992); Kravis and Lipsey (1982); Loree and Guisinger (1995); Schneider and Frey (1985); Tsai (1994); Lipsey, (1999) and Wei (2000), the significance of the market size has been confirmed.

5.1.4 Human Capital and Labor Force

To attract direct investment from abroad the human resources position in a country is additionally helpful. Foreign investors highly care about the quality of the employees as well as their cost. Actually lowly skilled labor can well reduce the cost advantages with lower remuneration in developing countries. It is usually more productive as skilled workforce can learn and implement new technology more rapidly.

Higher human capital, which can considerably improve the positional advantage of a country, is a good proxy in evaluating the accessibility of qualified labors. Root and Ahmed (1979), Schneider and Frey (1985), Noorbakhsh et al. (2001), Borensztein et al (1998), and Aseidu (2002) established that the human capital has an essential role in drawing FDI and it is also important determinant in making local advantages for host country.

5.1.5 Infrastructure

Infrastructural components such as the position of telecommunications and railways play a significant role. It has been noticed that country obtains a considerable amount of FDI if the infrastructural facilities are appropriately prepared in a country. Country situates in better opportunity of receiving higher rate of FDI.

5.1.6 Financial Repression

In decisional issues of Multinational Corporations (MNCs), we will use financial repression as an important factor. Financial repression erodes the risk-averse overseas investors' assurance in domestic investment environment and generates a risky business environment, which consequently repels foreign direct investment away. Since the measurement of financial liberalization of the Iranian economy was not directly available, this thesis used an index introduced by Taghipour (2009) which consist of financial repression variables that could have impact on Iranian economy. These variables are, reserve requirements, liquidity ratio, interest rate calling as well as directed credit programs.

As discussed in Taghipour (2009), the dummy variable IC is used for interest rate control and it demonstrates strict control if it is (1) and, 0.5 if fractionally severe, and (0) if freely determined by the banking sector. The DC dummy variable is used to determine the ratio of directed credit programs and is set to 0 when there is no use of directed credit programs, is set to 0.5 when there is only up to 5%, is set to 1 if it is between 5 to 15%, and is set to 2 for more than 15% use of direct credit programs on total bank lending.

For the reserve and liquidity requirement, the reserve requirement ratio (RR) on bank deposit is used (see Taghipour, 2009). Taghipour (2009) calculates a composite

index, which is consist of interest rate controls, reserve requirement and directed credits using a procedure called Principle Components Analysis (PCA). The index is constructed as follows:

Financial Restraints Index = 0.358(DC) + 0.658(IC) +0.661(RR).

If the number is small, it means that there is less repression and vice versa. Table 3 summarizes the theoretical determinants of FDI.

Table 3: Theoretical Determinants of Financial Development

Determinants	Expected impact
Inflation	-
Trade openness	+
Financial Repression	-
Infrastructure	+
Human Capital	+
Market Size	+
Total Labor Force	+

As a result, this thesis will employ these variables to investigate the determinant of FDI in the case of Iran.

Chapter 6

DATA AND METHODOLOGY

6.1 Data

The data used in this thesis is annual and runs from 1965 to 2005. In our data and methodology, FDI is the dependent variable, which is calculated as the net FDI inflow as a percentage of GDP (see Quarzi, 2005; Adeisu, 2002; Goospeed et al, 2006). By utilizing total labor force (L), we can organize and analysis the effect of workforce size.

We proxy the quality of the labor using the number of higher educated employed (HK). For market size (MS*)*, we pursue literature and utilize real per capita income. We may also substitute Per capita, GDP for investment environment (Wei, 2000; Aseidu, 2002) and capital quantity (Edwards, 1990). And Total imports and exports as a share of GDP is considered as criteria to evaluate the level of the economy's openness to foreign trade (TO).

Inflation (INF) is proxied by consumer price index. Financial repression (FR) is proxied as defined earlier. Table 4 summarizes the time series data, which is used in the thesis:

Table 4: Variables and Data Sources

Variable	Data	Data Source	Symbol
Labor	Total Labor Force	The World Bank's World Development Indicators (WDI)	L
Capital[1]	Gross capital formation (% of GDP)	The World Bank's World Development Indicators (WDI)	K
Market Size	Real GDP per capita	The World Bank's World Development Indicators (WDI)	MS
Human Knowledge Accumulation	Number of higher educated employed	Statistics Center of Iran	HK
Trade Openness	(Exports+Imports)/GDP	The World Bank's World Development Indicators (WDI)	TO
Research and Development (Technology)	Research expenditure in Iran	Statistics Center of Iran	RD
Capital[2]	Physical capital input	Statistics Center of Iran	PK
Inflation	Consumer Price Index	The World Bank's World Development Indicators (WDI)	INF
Financial Repression	Financial repression index	Taghipour (2009)	FR
Foreign Direct Investment	FDI/GDP	The World Bank's World Development Indicators (WDI)	FDI

The model, express that, the size of the market, economy openness to foreign trade, financial repression, infrastructure, labor human capital and inflation have significant

[1] The transfer of savings from individuals and organizations into capital for the business sector, resulting in increased output and economic expansion (http://www.wisegeek.com/what-is-capital-formation.htm).

[2] In general physical capital refers to any non-human asset made by humans and then used in production (investor dictionary, 2009).

effects on FDI. Accordingly, the estimated models can be represented force, in the empirical framework as generalized below.

FDI = *f* (L, K, MS, HK, TO, RD, PK, INF, FR)

Which means that FDI is a function of Labour (L), Capital (K), Market Size (MS), Human Knowledge Accumulation (HK), Trade Openness (TO), Research and Development (RD), Technology, Capital (PK), Inflation (INF), Financial Repression (FR). However, all variables cannot be used in the same model due to econometric problem of multicollinearity which will be explained in the next chapter.

6.2 Methodology

6.2.1 Johansen Cointegration

In econometrics, some variables are not stationary and they are classified as *I*(1), i.e. integrated of order 1. Therefore, the correct methodology is to employ the Johansen cointegration analysis because it allows the variables to be *I*(1). Hence, this thesis employs Johansen cointegration tests to examine the relationship between the dependent and independent variables.

Cointegration examines long-run connection between non-stationary variables. If the variables are *I*(1), then Johansen cointegration analysis is utilized to find out whether there exist a long-run relationship between the variables or not. Also, a linear combination of *I*(1) variables are stationary if variables are cointegrated (Vuranok, 2009).

This thesis uses Eviews software to test for cointegration between the variables. Prior to applying Johansen cointegration test, deterministic trend assumption of test must

be decided. In this thesis, we assume linear deterministic trend in time series data. Maximum Eigenvalue and Trace tests are used by Johansen cointegration test. Trace identifies whether the number of cointegrating vector is zero or one and then Maximum Eigenvalue test classifies whether a single cointegration equation is sufficient or not.

Johansen multivariate cointegrating framework is defined as follows:

$$\Delta z_t = \Gamma_1 \Delta z_{t-1} + \ldots + \Gamma_{k-1} \Delta z_{t-k-1} + \Pi z_{t-1} + \mu + \varepsilon_t; \quad t = 1, \ldots, T \tag{1}$$

where, z is a vector of variables, Δ denotes the first difference operator and $\varepsilon_t \sim$ niid $(0,\Sigma)$, μ serves as a drift parameter, and Π is a $(p \times p)$ matrix such that $\Pi = \alpha\beta'$, where α and β are both $(p \times r)$ matrices with β consisting of the r cointegrating relationships and α containing the related adjustment coefficients for the r vectors.

Johansen (1979) offers two tests statistics to decide the cointegration rank. The first one is the trace statistic

$$\text{N} \quad \left\{ trace(r_0 / k) = -T \sum_{i=r_0+1}^{k} \ln(1 - \hat{\lambda}_i) \right. \tag{2}$$

where, $\hat{\lambda}_i$ denotes eigenvalues $\lambda_1 > \lambda_2 > \lambda_3 > \ldots > \lambda_k$ and r_0 ranges from 0 to k-1. This is the test statistic used to test the null hypothesis $r \leq r_0$ in opposition to the alternative $r \geq r_0 + 1$. The second one is the maximum eigenvalue test; which is known and denoted here as $\lambda\max(r_0)$.

max (r_0) is directly related to the trace statistic but is derived from changing the alternative hypothesis from $r \geq r_0 + 1$ to $r = r_0 + 1$. The λmax test statistic can be defined as:

$$\lambda \max (r_0) = -T \text{ in}(1 - \lambda_i) \text{ for } i = r_0 + 1 \quad (3)$$

The relevant null hypothesis involved is there are r cointegrating vectors, against the alternative of r + 1 cointegrating vectors. Johansen and Juselius (1990) indicate that the trace test often might lack the power compared with the maximum eigenvalue test. Hence, the maximum eigenvalue test statistic is frequently preferred.

6.2.2 Unit Root Tests

The primary action of the coointegration process is to discover whether the series are *I*(1), i.e. integrated of order 1. Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) test are used to examine for stationarity

The ADF unit root test examines if the series are stationary or not and can be defined as:

$$\Delta Y_t = Y_0 + at + \Phi Y_{0-1} + \sum \Phi_i Y_{0-1} + u_t$$

$$\Delta Y_t = Y_t - Y_{0-1}$$

where,

Y_t : dependant variable

Y_0 : constant term

t : trend variable

u_t : stochastic disturbance term

The corresponding null hypothesis and the alternative hypothesis are:

$$H_0 : \Phi = 0 \quad (Y_t \text{ is non-stationary})$$

$$H_1 : \Phi \neq 0 \quad (Y_t \text{ is not non-stationary})$$

Brooks (2002) argues that the time series can be stationary if considered t-statistic in absolute terms is larger than MacKinnon critical values.

Chapter 7

EMPIRICAL RESULTS

Before the application of the Johansen cointegration process, it is imperative to first confirm the order of integration of each variable by carrying out unit root tests. As discussed earlier, Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) tests are used. Results of the unit root tests are presented in Table 1. In this thesis the logarithm of variables are considered because log variables give us elasticises and lessen the effect of outliers and smoothes out data (Maddala, 1992). Results of unit root tests are provided in Table 5 below.

Table 5: Augmented Dickey Fuller and Phillip-Perron Tests

Name of variables	ADF		Conclusion at the 5%	Phillip-Perron		Conclusion at the 5%
	Levels	Difference		Level	Difference	
FDI[a]	-0.37	-5.78	I(1)	-0.68	-5.82	I(1)
FDI[b]	-0.84	-6.51	I(1)	-0.80	-6.51	I(1)
FDI[c]	-0.49	-5.81	I(1)	-0.80	-5.85	I(1)
K[a]	-3.39	-6.72	I(1)	-3.36	-15.97	I(1)
K[b]	-3.77	-6.64	I(1)	-3.68	-17.34	I(1)
K[c]	-0.13	-6.81	I(1)	0.29	-14.69	I(1)
MS[a]	-2.40	-4.53	I(1)	-2.29	-4.52	I(1)
MS[b]	-1.54	-4.77	I(1)	-1.59	-4.77	I(1)
MS[c]	2.65	-4.01	I(1)	2.08	-3.97	I(1)
PK[a]	-2.39	-4.23	I(1)	-2.14	-2.59 (-8.62)	I(2)
PK[b]	-2.60	-4.26	I(1)	-2.03	-2.51 (-8.33)	I(2)

Table 5: Augmented Dickey Fuller and Phillip-Perron Tests (continued)

Name of variables	ADF		Conclusion at the 5%	Phillip-Perron		Conclusion at the 5%
	Levels	Difference		Level	Difference	
PK[c]	1.48	-3.85	I(1)	1.76	-2.53 (-8.91)	I(2)
HK[a]	-2.05	-5.26	I(1)	-1.95	-5.44	I(1)
HK[b]	-1.66	-5.91	I(1)	-1.69	-5.91	I(1)
HK[c]	-8.56	-	I(0)	5.70	-	I(0)
RD[a]	-0.61	-6.01	I(1)	-0.56	-6.02	I(1)
RD[b]	-2.58	-5.93	I(1)	-2.58	-5.93	I(1)
RD[c]	1.43	-5.42	I(1)	1.37	-5.41	I(1)
L[a]	0.22	-4.63	I(1)	0.22	-4.57	I(1)
L[b]	-3.28	-4.57	I(1)	-2.63	-4.50	I(1)
L[c]	8.42	-	I(0)	4.42	-	I(0)
FR[a]	-0.38	-5.85	I(1)	-0.66	-5.89	I(1)
FR[b]	-1.02	-6.50	I(1)	-0.98	-6.50	I(1)
FR[c]	-0.46	-5.88	I(1)	-0.75	-5.92	I(1)
TO[a]	-2.22	-4.43	I(1)	-2.00	-4.46	I(1)
TO[b]	-2.18	-4.37	I(1)	-1.98	-4.41	I(1)
TO[c]	0.40	-4.46	I(1)	0.23	-4.49	I(1)
INF[a]	-2.93	-7.07	I(1)	-2.78	-8.74	I(1)
INF[b]	-3.06	-7.15	I(1)	-2.99	-16.57	I(1)
INF[c]	-1.32	-1.32	I(1)	-0.98	-8.64	I(1)

Note: a, b and c denote intercept, trend and intercept and none, respectively.

As can be seen from Table 5, all variables are stationary after taking first differences and hence they are denoted by the notation *I*(1). The only exception is physical capital, which is stationary at first difference in Augmented Dickey Fuller test while stationary in second difference in Phillip-Perron test. Nevertheless, variables like labor and human capital are stationary without taking any difference.

7.1 Tests for Multicollinearity

In this thesis, before building each model, the existence of multicollinearity was investigated. Multicollinearity takes place when two independent variables have a high degree of correlation with each other. It is an econometric concern which stems from the correlation between the dependent variable with independent variable as well as the between the independent variables. In this thesis, variables which are correlated with a correlation coefficient of 0.6 or above are not considered in the same models because it was observed that this results in inconsistency in the signs and significance of the variables.

Table 6: Correlation Martix

	L	K	MS	HK	TO	RD	PK	INF	FR	FDI
L	1.0	0.6	0.4	0.2	0.6	0.6	0.5	0.4	0.4	0.0
K		1.0	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.1
MS			1.0	0.4	0.5	0.4	0.4	0.4	0.5	0.5
HK				1.0	0.2	0.7	0.6	0.5	0.2	0.2
TO					1.0	0.5	0.4	0.3	0.4	0.5
RD						1.0	0.6	0.7	0.5	0.1
PK							1.0	0.5	1.0	0.5
INF								1.0	0.5	0.0
FR									1.0	0.5
FDI										1.0

Table 6 shows the correlation coefficients. As evident from Table 5, variables like HK, PK, RD, TO, INF, RD, K and L are not used within the same model for their multicollinareaty problems.

As evident from the Table 6 the pair wise coefficient of the independent variables of HK, PK, RD, TO, INF, RD, K and L are correlated with a correlation coefficient of 0.6 or higher among each other. Therefore, they are not used in the same models. Based on this consideration, five models have been established with various combinations of the variables which yielded cointegrating relationships. These models are summarized as follows:

Table 7: Estimated Models Where Cointegrating Relationships Exist

Model	Variables
Model 1:	FDI, K, MS, HK, FR
Model 2:	FDI, MS, HK, TO, INF, FR
Model 3:	FDI, K, MS, RD, PK, FR
Model 4:	FDI, MS, HK, TO, INF, FR
Model 5:	FDI, L, MS, PK, INF, FR

7.2 Results of the Johansen Cointegration Tests

In Johansen cointegration examination, the initial step is to decide lag length. There are quite a few criteria on hand for this use. These are Schwarz Information Criterion (SIC), Akaike Information Criterion (AIC), Sequential Modified LR test statistics (LR) and Final Prediction Error (FPE) and Hannan-Quinn Information Criterion (HQ). The results of these tests criteria are obtained using the Eviews software. Furthermore, in tests, the Vector Autoregression (VAR) specification is chosen to be with intercept and no trend.

In each case, up to 5 lags are used until significant results are obtained. The results of Johansen cointegration tests which resulted in a co-integrating relationship are

reported below. In each table, the results of both Maximum Eigenvalue and Trace tests are presented.

Table 8: Results of the Maximum Eigenvalue and Trace Tests for Model 1

Hypothesized No. of Cointegration Equations	Maximum Eigenvalue Statistic	0.05 Critical Value	Trace Statistic	0.05 Critical Value
R==0	33.5429*	32.3876	57.6848*	53.6818
R<=1	33.7317*	26.5484	52.4518*	46.4856
R<=2	16.4264	23.5131	26.6401	26.3797
R<=3	5.6634	15.4264	7.3636	12.5494
R<=4	0.5001	3.7414	0.4001	3.7414

* denotes rejection of the hypothesis at the 0.05 level. Lag length is selected as 1 based on LR, FPE, AIC, SC, HQ.

As can be seen above, according to the results in Table 8 for model 1, both Trace and Maximum Eigenvalue tests show that there are two cointegrating vectors at the 5% level.

Table 9: Results of the Maximum Eigenvalue and Trace Tests for Model 2

Hypothesized No. of Cointegration Equations	Maximum Eigenvalue Statistic	0.05 Critical Value	Trace Statistic	0.05 Critical Value
R==0	40.7546*	43.6077	88.4308*	73.7453
R<=1	35.4010*	34.4876	75.5541*	67.6818
R<=2	24.3658	26.3584	44.6531	45.8456
R<=3	16.4312	27.1231	19.4873	39.4797
R<=4	4.5291	18.4264	5.8607	17.4494
R<=5	1.8316	3.9414	1.8316	3.8414

* denotes rejection of the hypothesis at the 0.05 level. Lag length is selected as 1 based on LR, FPE, AIC, SC, HQ.

As can be seen in Table 9 for Model 2, both Trace and Maximum Eigenvalue tests show that there are two cointegration vectors at the 5% level.

Table 10: Results of the Maximum Eigenvalue and Trace Tests for Model 3

Hypothesized No. of Cointegration Equations	Maximum Eigenvalue Statistic	0.05 Critical Value	Trace Statistic	0.05 Critical Value
R==0	98.6557*	96.6753	56.7469*	40.7077
R<=1	71.3085	79.4818	36.7398*	33.5876
R<=2	47.3687	48.3856	26.5615	29.4584
R<=3	19.4071	39.3797	9.4633	11.6131
R<=4	6.6938	18.4494	6.6438	7.6264
R<=5	3.4678	3.5841	3.3456	3.4841

* denotes rejection of the hypothesis at the 0.05 level. Lag length is selected as 1 based on LR, FPE, AIC, SC, HQ.

As evident from Table 10 for Model 3, Trace test shows that there are two cointegrating vectors while Maximum Eigenvalue test shows only one cointegrating vector at the 5% level.

Table 11: Results of the Maximum Eigenvalue and Trace Tests for Model 4

Hypothesized No. of Cointegration Equations	Maximum Eigenvalue Statistic	0.05 Critical Value	Trace Statistic	0.05 Critical Value
R==0	55.1308*	46.4077	87.6574*	85.3753
R<=1	35.3208	36.6876	75.4265*	69.4818
R<=2	27.4647	27.6584	47.3056	47.6856
R<=3	14.3545	25.4131	19.4408	29.4797
R<=4	4.4723	17.3264	4.6563	15.4494
R<=5	0.6439	3.4841	1.6439	3.6841

* denotes rejection of the hypothesis at the 0.05 level. Lag length is selected as 1 based on LR, FPE, AIC, SC, HQ.

Table 11 shows that in Model 4, Trace test shows that there are two cointegrating vectors while Maximum Eigenvalue test shows only one cointegrating vector at the 5% level.

Table 12: Results of the Maximum Eigenvalue and Trace Tests for Model 5

Hypothesized No. of Cointegration Equations	Maximum Eigenvalue Statistic	0.05 Critical Value	Trace Statistic	0.05 Critical Value
R==0	54.4085*	46.6077	99.6983*	95.6753
R<=1	34.4372	33.4476	76.4898*	69.4818
R<=2	25.6479	27.6584	49.3525*	47.4856
R<=3	18.4679	21.4131	27.4046	29.7697
R<=4	8.6933	14.4264	8.6866	15.4494
R<=5	0.6032	3.3841	0.4562	3.6841

* denotes rejection of the hypothesis at the 0.05 level. Lag length is selected as 1 based on LR, FPE, AIC, SC, HQ.

As can be seen in Table 12 for model 5, Trace test shows that there are three cointegrating vectors while Maximum Eigenvalue test indicates only one cointegrating vector at the 5% level.

7.3 Cointegrating Vectors

As evident from the results presented above, Trace test statistics and Maximum Eigenvalue test statistics point out that there is at least one cointegrating vector in each of the estiamted models. The related cointegrating vectors for each model are shown below. For example, CI (A) denotes cointegrating vector for model 1, and the standard errors are given in the parentheses. The level of significance is determined by dividing the coefficient with the standard error for each variable.

It should be emphasized that due to the nature of the representation of the models, the signs of the coefficient are interpreted as the opposite of the reported signs in each case in the following equations. The related cointegrating vectors for (CI) each model is estimated respectively as follows.

CI (1) = FDI – 0.4377(K) – 0.4645(MS) – 0.3296(HK) + 0.4646(FR)

(0.0630) (0.0444) (0.72479) (0.0453)

In cointegrating vector for model 1 above, K, MS and HK show positive effect on FDI, whereas FR shows negative impact. Variables are significant at 1% level except HK.

CI (2) = FDI – 0.564(MS) – 0.4823(HK) – 0.4355(TO) + 1.1566(INF) + 0.4636(FR)

(0.1327) (0.7640) (0.1495) (0.7390) (0.2229)

In cointegrating vector for model 2 above, TO, MS and HK show positive effect on FDI, whereas FR and INF shows negative impact. Variables are significant at 1% level except HK.

CI (3) = FDI – 0.4337(K) – 1.5548(MS) – 0.3346(RD) – 0.5455(PK) + 0.5436(FR)

(0.3310) (0.3211) (0.4032) (0.1210) (0.3011)

In cointegrating vector for model 3 above, K, MS, PK and RD show positive effect on FDI, whereas FR shows negative impact. Variables are significant at 1% level.

CI (4) = FDI – 0.3637(MS) – 0.5339(HK) – 0.6447(TO) + 1.3435(INF) + 1.2256(FR)

(0.0388) (0.9139) (0.3139) (0.2790) (0.0329)

In cointegrating vector for model 4 above, TO, MS, HK show positive effect on FDI, whereas FR and INF shows negative impact. Variables are significant at 1% level except HK.

CI (5) = FDI – 5.5437(L) – 1.3338(MS) – 1.5239(PK) + 0.3545(INF) + 0.3346(FR)

(7.7390) (0.0229) (0.6214) (0.2410) (0.0211)

In cointegrating vector for model 5 above, L, MS, PK show positive effect on FDI, whereas FR and INF shows negative impact. Variables are significant at 1% level except L.

Overall, as can be seen from the results, in the cointegration models where FDI is the dependent variable, K, MS, TO, RD and PK are significant with a positive coefficient which means that, capital, market size, trade openness, and Research and Development (Technology) have a positive impact on FDI. On the other hand, inflation and financial repression are significant with a negative coefficient which means that these two variables have a negative impact on FDI. These finding are indeed in line with the theoretical expectations. The results further suggest that human capital accumulation and labor have no statistically significant impact on FDI in the case of Iran.

Chapter 8

CONCLUSION

The endeavour of this thesis was to explore the effect of financial repression on FDI in Iran through Johansen Cointegration tests by using time series data from 1965 to 2005.

The empirical part of the thesis investigated the determinants of FDI in Iran while testing for the impact of financial repression on FDI in the country. The thesis investigated if the financial repression index would indeed have a significant negative impact on FDI, while simultaneously the significance of other determinants of FDI were also investigated.

The results suggested that that capital, market size, trade openness, and Research and Development (Technology) have a positive impact on FDI. On the other hand, inflation and financial repression are significant with a negative coefficient which means that these two variables have a negative impact on FDI. Overall, the findings obtained in this research for the conventional determinants of FDI are in line with the existing theories in the literature.

Regarding inflation, it can be argued that inflation is without a doubt one of the biggest problems that all companies operating in Iran face. For the last thirty years, Iranian economy has been suffering from a high inflationary setting and the foreign investors feel themselves exposed to the negative impacts of inflation. As the

findings of this research have shown, inflation prompts inflationary expectations and discourages most potential decisions for FDI. Furthermore, the results of this thesis lend support to Ben Naceur et al (2007) and Boyd et al (2001), as well as to Huybens and Smith (1999), who argue that economies with higher inflation rates are expected to have smaller and less efficient equity markets and banks.

The results also suggest that trade openness is significant with a positive coefficient. This corresponds to the existing empirical evidence (Jun & Singh, 1996) which suggest that higher levels of trade openness lead to higher FDI inflows.

Regarding the market size, the results suggest that this variable has a significant positive impact on FDI in the case of Iran. Indeed, one of the most important determinants of foreign direct investment is the size of the economy. The results suggest that the size of the Iranian economy and its potential demand for output is an imperative constituent in FDI decisions. This finding is indeed in line with many previous empirical studies. Similarly, regarding Research and Development, which is also used to proxy the level of technology in Iran, the results suggest that this variable has a significant positive impact on FDI. As the results show this plays an important part in having the foreign direct investors come into Iran.

Regarding human knowledge accumulation and labor, the results suggest that these variables have no impact on FDI in the case of Iran. This shows that the status of the human resources in Iran is not an active factor in attracting foreign direct investment from overseas. Therefore, the findings regarding the role of labor is not in line with the theory as the results suggest that labor has no impact on FDI in the case of Iran, which suggests that labor force in Iran is not helpful in encouraging FDI on the

contrary of what the existing theories suggest. This can be a result of the small productivity of the labor in Iran. It is reported that productivity averages 4.5 per cent in less developed Central Asian states. However, it's 1.2 per cent in Iran[3]. Besides, labor productivity in industry is reported to be 40 percent smaller than the national average. As a result, industry in Iran is clearly not efficient[4]. Hence, it is clear that labor productivity is a significant problem in Iran as it fails to assist in attracting FDI to the country as expected. Policy-makers in Iran are advised to find a solution to this problem because foreign investors may also be interested in the quality of the labor force in Iran before making investment because more educated labor force is expected to learn and adopt new technologies in a faster fashion and they tend to be more productive. A higher level of human capital is certainly a good gauge of the accessibility of skilled workers and human capital may be used as a significant potential advantage for host country like Iran, playing a key role in attracting FDI in the future if policies are implemented in this direction.

The most important result of this thesis is that financial repression policies have a significant negative impact on FDI in the case of Iran. This indicates that financial repression policies result in an unfavorable business climate in Iran which critically erodes the foreign investors' confidence in the domestic market and thereby repels FDI. This finding has lent support to the argument that financial liberalization can promote FDI in Iran. Clearly, improvements in financial system lead to better allocation of financial resources in existence of a well-functioning financial system. In this case, firms can develop their businesses through borrowing at lower rates. In addition, financial intermediaries can channel their funds to the best projects. The

[3] http://www.accessmylibrary.com/coms2/summary_0286-24018775_ITM
[4] http://www.encyclopedia.com/doc/1G1-86620424.html

results of this thesis suggest that repression policies which imply interest rate ceilings, credit programs and high reserve ratios result in lower savings, lower investments and eventually have a negative impact on FDI. This is an vital issue for the Iranian economy because financial repression distorts the economy and hinders the FDI process. Policy makers in Iran should therefore devise more financially liberalized policies in order to attract FDI from overseas.

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