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Testing the effect of foreign and domestic price shocks on the inflow of capital market to Iran

Ghazaleh Tajilro[1], Jalal Seyfodini[2], Somayeh Shokravi[3]

[1]Department of Financial Management, Islamshahr branch, Islamic Azad University, Islamshahr, Iran
[2]Department of Financial Management, Islamshahr branch, Islamic Azad University, Islamshahr, Iran. Email: jalal.seifoddini@iiau.ac.ir
[3]Department of Economics, Islamic Azad University, Islamshahr branch, Islamshahr, Iran

Abstract

The purpose of this study is to test the effect of foreign and domestic price shocks on the inflow of capital market to Iran. To achieve this goal, first the theoretical foundations and research background (internal and external studies) were studied, then the research model for Iran during the period 2000-2019 was estimated and research hypotheses were tested. The results of the research, while confirming the hypotheses of the research, showed that exchange rate fluctuations have a negative and significant effect on the inflow of capital and transfer payments of a country. Inflation uncertainty, which indicates the inefficiency of economic policies in the country, has also been a negative factor in attracting inflow of capital to Iran. Increasing capital stock and spot prices have a positive and significant effect on attracting capital inflows to Iran and transfer payments. Finally, some suggestions for increasing the inflow of capital investment are presented according to the research results.

Keywords: Foreign price shocks (exchange rate changes), domestic price shocks (inflation rate changes), capital inflows and transfer payments, Iran

Introduction

Lack of capital in economic issues has been raised as one of the most important factors of underdevelopment. In other words, economic growth and development will not be possible without the accumulation of capital; So much so that many thinkers attribute the underdevelopment of many countries to a lack of income and savings and therefore insufficient investment (Abdirahman, A., 2020). Capital can mobilize the productive sector and, by increasing production, increase trade, improve people's living standards, and promote economic growth and development. Lack of capital is one of the main reasons for many countries to fall into the vicious circle of poverty and underdevelopment, and in addition, it leads to widespread unemployment, delays the level of financial production and, in turn, leads to economic poverty. In economic development issues, the main solution to overcome the problem of capital shortages and get out of the vicious cycle of poverty and underdevelopment is the use of developing countries to accumulate capital in developed countries (Miller. 2019). On the other hand, given that one of the factors of economic growth is investment growth and the mechanism of the effect of uncertainty on economic growth is through the investment channel, so one of the

important issues of examining uncertainty on the real value of the economy is examining the effects of uncertainty on investment (Asiyouda, 2019). Therefore, the present study, in coordination with the theoretical and practical study, examines the effects of inflationary uncertainty and uncertainty resulting from foreign price fluctuations (exchange rate) on foreign direct investment in Iran. In economies that are experiencing rising inflation, high inflation expectations and currency market fluctuations, instability in investment in the manufacturing sector is common. In other words, the existence of inflation and foreign price fluctuations (exchange rate) through the channel of creating uncertainty for the investor reduces the incentive to invest in production and increases the incentive for unproductive activities and the stock market, and therefore the present study Investigating the effect of changes in foreign prices (exchange rate changes) and changes in norm rates that somehow measure economic instability (for the period 2000-2019- World Bank.,2020) on investment during the last three decades of the Iranian economy using a new approach VECM econometrics estimates the inflow of capital function to Iran.

Theoretical foundations and research background

Domestic price shocks (inflation):

Inflation in economics means an increase in the general level of prices over a period of time, the rate of inflation is equal to the change in a price index, which is usually the consumer price index. Also, fluctuations or shocks are alternating changes of one variable. Expresses the tendency of the variable to fluctuate (change). (Predictable). Instability is the part of a tendency for a variable to fluctuate that is unpredictable. Variance is used to calculate the fluctuations. Also, the percentage growth of the price index is used to calculate inflation. The effects of inflation on investment and growth in the theoretical literature are not entirely clear and ambiguous. If in the 50s and 60s the literature of growth theory emphasized the positive impact on capital accumulation, today, at least in developing countries, there are many reasons why high and variable rates have a negative impact on growth and investment (Erdal et al., 2018).

According to the Mandel-Tobin hypothesis, which according to this hypothesis higher inflation and consequently higher growth leads to higher real investment and consequently higher growth. Cash-in-Advance models hypothesize that in such models, projected inflation reduces capital accumulation and thus growth. According to the Mandel-Tobin effect, higher projected inflation leads to a lower real interest rate, and this adjustment in assets shifts real money to real (physical) capital. Therefore, higher projected inflation is expected to lead to higher investment and faster growth. Also, if the forecast is not complete, the hypothesis of incomplete forecasting and adjustment for inflation, forced savings - through interruptions in prices and wages, or a wealth effect through the detrimental effects of inflation on government-issued bonds or money which leads to higher savings can increase the growth rate. When inflation is highly variable, obtaining accurate information about relative price fluctuations is relatively difficult and can lead to inefficient allocation of economic resources, including capital (Wei, 2017).

As Fisher pointed out, inflation acts as an indicator of the government's ability to manage macroeconomics. Since there is no good reason for very high inflation rates, the government that causes high inflation is the government that has lost control. (Borensztein, 2017)

In (Cash-In-Advance) models, unforeseen inflation reduces capital accumulation, capital accumulation and therefore growth by

increasing the cost of capital, and high inflation forces individuals and businesses to avoid the costs of inflation, monetary assets Hold less. This in turn reduces the labor force available for production with a consequent decrease in growth rate (Choong, 2016).

Inflation, especially the high rate of those individuals and firms, leads to the transfer of resources from productive activities to other activities that reduce the financial burden of inflation tax. According to the rational expectations hypothesis, only "the only unforeseen component of money matters" means that it affects the level of economic activity (Johnson, 2015). Based on the rational expectations hypothesis, it can be inferred that the greater the changes in inflation, the more difficult it is to predict its impact on the level of real economic activity will be significantly greater. John McCain tested the effect of inflation uncertainty on employment and the general population and concluded that inflation uncertainty significantly reduces the level of economic activit (Le, 2014).

Inflow of capital (foreign investment):

Foreign investment is an investment that involves long-term economic relations and reflects the lasting interests and control of the economic unit residing in one country (parent company) over the economic unit residing in another country (subsidiary of the parent company). From the perspective of the International Monetary Fund, foreign direct investment is an investment that is made for the purpose of gaining lasting benefits in a country other than the investor's home country, and the purpose of this investment is to play an effective role in the management of the firm. Be. Foreign investment can be distinguished in two ways: first, "foreign direct investment" in which a country or foreign investor invests directly or with the participation of domestic investors (FDI), and second, "indirect investment". Which is usually done by foreign investors through the purchase of stocks and bonds on the stock exchange. At the national level, there are several divisions in relation to foreign direct investment. From the investor's point of view, foreign direct investment can be divided into three groups: horizontal foreign direct investment, vertical foreign direct investment and foreign direct investment hybrid (Lall & Urata, 2003).

In horizontal foreign direct investment, the investor, with the aim of his horizontal development, produces products that he produces in his own country or similar in another country. In general, the investor in horizontal foreign direct investment seeks the full productivity of monopoly benefits such as patents or the production of distinctive products, while in vertical foreign direct investment, the investor seeks in stages of the product value chain. To enter. If the investor invests with the aim of securing and using resources and raw materials, vertical foreign direct investment has occurred backwards. Hybrid foreign direct investment is actually a combination of horizontal and vertical foreign direct investment (Lall & Urata, 2003). On the other hand, from the host's perspective, foreign direct investment can be divided into three categories: import substitution, export development, and government stimulation. Also, foreign direct investment (FDI) from the perspective of "imports" emphasizes the production of products that are imported into the country in the past. This type of foreign direct investment depends on the size of the host country's market, transportation costs, and trade barriers, while in the "export development" perspective, the emphasis is on producing products that expand the investor's exports. (Expansion of exports of raw materials and intermediate products) Foreign direct investment based on government incentives also emphasizes the provision of

incentives by the government for foreign investors, to eliminate the deficit in the macroeconomic balance of payments with these incentives (Mir and et al., 2021)

Transfer Payments (TR):

The same means all the annual grants of foreign countries and institutions International to Iran.

Exchange Rate:

One of the most important reasons for capital flight from economic activities is the possibility of change (increase) in the exchange rate. In a situation where the domestic currency is overvalued (assuming other factors affecting the exchange rate are constant), it is expected that the value of the domestic currency will decrease relative to the foreign currency (currency) in the future. This prevents local residents from potentially losing their capital by converting their domestic assets and wealth into currency. Therefore, domestic savers will prefer to divert their wealth to foreign assets. This issue causes the formation of the phenomenon of "capital flight" from the country. Capital flight from two perspectives can affect a country's economic growth. In this way, on the one hand, it causes the depletion of the country's capital resources (which can serve the economy of that country and increase the amount of investment in various economic sectors) and increase the cost of capital (due to shortages). This will increase the cost of capital and will also increase production costs and create problems in foreign investment. On the other hand, the shortage created by the sale of foreign exchange (due to capital flight) will cause the shortage of foreign exchange needed to finance the import of capital goods and intermediaries (which play a valuable role in economic growth) and reduce economic growth (Babaei Nejad , 2021).

Extensive exchange rate fluctuations can have many positive and negative consequences. These fluctuations, due to the structural relationship between all macroeconomic variables, can affect the level of prices, production and exports in different ways, the value of assets, liabilities, Affect income from foreign exchange assets and the cost of foreign currency liabilities and lead to errors in forecasting companies' gross profit margins. The exchange rate in the market is determined by the forces of supply and market demand, the supply side in the Iranian economy includes revenues from oil exports, non-oil goods, foreign investment in the country and foreign loans. One of the successful policies of the government in the foreign exchange sector is the establishment of a single exchange rate system in order to deal with the possible risks of exchange rate fluctuations and to support private sector investment (domestic and foreign), which has been implemented since 1981.

Exchange rate shocks (fluctuations or fluctuations):

Aliber was the first to examine exchange rate volatility in the flow of foreign direct investment. He argues that countries with weak exchange rates are likely to attract FDI in order to increase their purchasing power (Nouri and et al., 2021). Despite Alieber's initial arguments, it was not until the late 1990s that the issue of exchange rates became a major determinant of FDI. Cuez was the first to launch this new project in 1989. Examining the funds raised by the United States from twelve different countries, he concluded that the strengthening of a country's currency against the US dollar is considered (Kewes, 1989, pp. 228-199). Numerous hypotheses then emerged regarding the relationship between the FDI term and the level of exchange rate volatility. For example, Frut Eltin in his studies concluded that the devaluation of the dollar

causes a relative improvement in the position of investors and thus a decrease in investment. According to the two, despite the fact that the total foreign investment flow against the real value of the US dollar has declined, FDI is the only form of investment that has had a statistically negative correlation with the value of the dollar (Froutin, 1991, p. 1209). Doniter (1995) uses specific transaction data to test the assets of foreign companies in the United States to test the relationship between the value of the dollar and the flow and prices of foreign assets.

The results show that there is a correlation between the devaluation of the US dollar and the increase in the FDI flow of foreign companies (Glacorquin, 2004, p. 21). Kasman studies companies' efforts to increase the certainty of future profits against the currency of the investing country. However, it analyzes the effects of real exchange rate risk and FDI expectations in four different cases and believes that the relationship between exchange rate volatility and FDI flows depends on; 1. The place where the data was purchased; 2- The place where the products are produced; 3- The place where financial capital comes from and 4- Products are sold. Kasman then uses this data to analyze and test the US FDI in the United Kingdom, France, Germany, Canada, and Japan, and concludes that increased real exchange rate volatility leads to higher FDI because In the face of exchange rate risk, companies prefer to export FDI to penetrate foreign markets. (Kasman, 1985, pp. 308-297)

Research background

Abdul Rahman (2020), in an article entitled "FDI Determinants in Saudi Arabia" during the period (1980-19000) the effect of two variables of GDP, economic growth, exports, imports, wage rate, rate of return on capital, capital Examines the internal and imaginary variables on the FDI stream. The imaginary variable is the removal of risk components that are essentially socio-political and include government stability and public satisfaction, government investment (a measure of operational risk, taxation, citizenship, and labor costs), corruption, and regulations. The results show that the determinants of FDI flows in Saudi Arabia are economic, political and social factors, and the level of economic activity along with variables related to the structure of return on investment, the degree of openness of the economy and the economic environment are also considered as factors affecting FDI be The level of GDP has a positive and significant effect on FDI and exports and imports have a significant opposite effect on it. Domestic investment also has a negative and significant effect on FDI, and the effects of political and social risks are fundamentally significant and have decreased with increasing FDI risk.

Asiuda (2019), in an article entitled "FDI determinants in developing countries; is Africa different?" Uses regression analysis to explain the spatial determinants of FDI. . Using cross-sectional data from 71 developing countries, the researcher examines the existence or non-existence of differences between this region and other developing countries in attracting foreign direct investment during the period (1970-1999). In this study, the variables of economic openness, infrastructure (number of telephone lines per thousand population) and return on investment (inverse of real GDP per capita) are considered as factors affecting FDI and the results show that the coefficients of these variables are significant. In addition, the SSA virtual variable is also significant and has a negative relationship with FDI uptake. The variables of economic openness consider infrastructure (number of central telephone lines per thousand population) and rate of return (measured by

inverse of real GDP per capita) as factors affecting FDI, and the research results Shows that the multiplication of these variables is meaningful.

"Ardal and Tatogo" (2018) presents an appropriate model by empirically examining the spatial factors affecting the absorption of FDI to Turkey for the period 1980-1980 and concludes that the size of the domestic market, economic infrastructure, market attractiveness of the host country and Open economy; Positive effect and exchange rate instability and political and economic instability also have a negative effect on FDI absorption.

Borensztein et al. (2017) in their article examines and empirically tests the role of foreign direct investment (FDI) in the process of technology dissemination and economic growth in developing countries. According to them, multinational companies have superior technology that allows them to introduce new capital (product) at a lower cost. However, the use of this superior capital requires the presence of sufficient levels of human capital in the host country. Because human capital in a country allows more absorption of imported technology, and thus human capital plays a complementary role in the process of economic growth resulting from foreign direct investment (FDI).

Buly Cardak and Imad moosa in 2016 at the University of La Torbe, Australia examined the effect of 8 variables on the inflow of foreign direct investment in 138 countries, which identified three variables: the ratio of exports to GDP, telephone lines per 1000 people and The risk of the country in question has a significant relationship with the flow of foreign direct investment in these countries.

"Lahiri and Misa" (2015) by presenting an appropriate model examines the effect of exchange rate uncertainty on FDI, and concludes that the exchange rate uncertainty of the host country affects FDI from two fronts in one direction The effect of revenue (domestic sales) and the other in terms of cost effect (supply of inputs from the host country) and finally because these two effects in the opposite direction affect FDI, so the effect of exchange rate fluctuations on FDI is ambiguous.

Using an economic model, Boyer (2014) examines the factors influencing FDI in Morocco from 1980 to 2012. In his study, he divided the factors affecting FDI into two categories of structural variables: market size, unit labor cost, human capital, economic dynamics and macroeconomic instability, and external variables such as trade performance and competition (approximated by exchange rates). Be) divides. By estimating structural and external variables, Boyer puts it this way: market size, human capital, economic infrastructure, and open economy have a positive effect on FDI inflows, but labor costs, inflation, and the real exchange rate have a negative effect on absorption. They have FDI.

Kerr and Peter (2013), by presenting a model, examine the determinants of FDI entry into China in the period 2012-2000 and conclude that wages, exchange rates, and taxes have a negative effect on the openness of the economy. Positive on FDI uptake.

Baggio and Simon (2012), by presenting the foreign investment model for multinational companies, introduce a function for the supply of foreign direct investment in the host country and using the aggregation method and data from the period 1970-1970 in Spain examines the long-run relationship between foreign direct investment and macro-variables such as real GDP, inflation rate, trade restriction level, exchange rate level, interest rate, wage index and foreign capital stock of the previous period, and such a result. They find that the supply of foreign direct investment is directly related to GDP and inversely related to the variables of inflation rate, exchange rate, interest rate, wage index and level of trade restriction.

Becker and J. Hall (2011), in an article entitled "Foreign direct investment in R&D and exchange rate uncertainty in the UK", also discuss the role of exchange rate uncertainty in capital decisions foreign direct investment has been made by multinational corporations in the UK. This article also analyzes exchange rate volatility and the correlations between the two, and concludes that if dollar exchange rate volatility increases, it will lead to a shift in R&D investment from Europe to the UK. Becomes.

Chanlay (2010), in a study entitled "FDI Spatial Determinants in Developing Countries", examined FDI determinants over 31 developing countries over the 8-year period from 1987 to 1994. In order to explain the FDI flow, a modified gravity model is used. The results show that factors such as market size, GDP growth, industrial wage (MEW), distance (estimated relative distance from the center of the global economy), FDI reserves, and openness of the economy are significant. They affect the FDI rate.

Camp (2009), in a study entitled "FDI determinants in developing countries; has globalization changed the way games are played?", Using data from 27 countries, during the period 1987-2005, determining factors Education and openness of the economy are among the factors affecting the absorption of FDI that the variable function of the market (GDP, GDP per capita), population and real economic growth have a more decisive role in absorbing FDI.

Fraussen & Henrik (2008), in a study entitled "FDI and developing countries; how are international companies attracted?" In order to identify FDI determinants of location in developing countries, using data from 62 countries during the period 1982 to 2000, using the Chanlai modified gravity model, using the ordinary least squares method, and considering The temporal and spatial dimension has led them to conclude that the FDI flow is a dependent flow and that the variables of education, domestic investment and distance are not significant and determining factors of FDI. The overall results show that the variables of FDI flow in the previous year, FDI reserve, economic growth, infrastructure and productivity have a decisive role on FDI flow and all the coefficients of the above variables are.

Schmidt and Bruhl (2008): An article shows the effect of exchange rate uncertainty on exchange rate fluctuations on foreign direct investment. The study was conducted in the United States from 1984 to 2004 and examined US foreign industrial and non-industrial foreign direct investment in six countries over the years, then using real exchange rate fluctuations as an indicator of size. Exchange rate risk acquisition has the effect of reducing exchange rate risk on the process of foreign direct investment of all industries. The results indicate that the trend of foreign direct investment depends on the appreciation of the currency of the host country.

Frey and Schneider (2007): In an empirical study, they have shown that the volume of foreign investment is related to political and economic factors. The results of their work in relation to 54 developing countries showed that political and economic factors such as security are effective in attracting foreign direct investment.

Bowling and Shine (2007): Emphasize the Real Impact of Exchange Rate Uncertainty on US Foreign Investment, and Given the High Fluctuation of the Exchange Rate Between 1983 and 2002 As the real exchange rate rises, so does the trend. The overall conclusion is that an overall decline in foreign exchange will reduce foreign direct investment through export opportunities created for domestic companies.

Onio (2006): In a study examining foreign direct investment in less developed countries. This study examines the role of economic and structural factors on the flow of foreign direct

investment using data from 51 developing countries and the Mena region during the period 1995-2004. The results of this study show that in Mena region, two factors ("free trade") and "corruption and bureaucracy code" have a major role in attracting foreign direct investment.

Ziera (2005) proposes an optimal capital accumulation model in which risk-averse investors face firm competition at uncertain relative prices. In this model, uncertainty has an indeterminate effect on investment: on the one hand, it increases investment through the convexity of the profit function, and on the other hand, it reduces investment due to the risk aversion of investors. The net effect depends on the concavity of the utility function, which represents the degree of risk aversion; Convexity has a function of profit and how risk is distributed.

Data analysis (testing of hypotheses)

Research method, model and variables:

The method of descriptive research is causal, which after expressing and describing the phenomenon in question, finds the desired variables and the cause-and-effect relationship between those economic destabilizing variables (foreign price shocks (exchange rate changes) and changes in inflation and capital flows). Admission to Iran is paid.

*Research Model: Capital Inflow to Iran and Transfer Payments (TR + FDI), Foreign Price (Real Exchange Rate) (RER), Oil Price (OIL), Inflation Rate (P), Capital Inventory (K), Imports (IM GDP, foreign price shocks (exchange rate changes) (RERFV) and domestic price shocks (inflation rate changes) (PFV) during the years 1379 to 1399, which are the variables that are appropriate in the research model. will be. Also, the variables are at a fixed price in 2014. In order to estimate the econometric model in the present study, the following steps will be performed briefly:

• First, we estimate the model by VAR method.

• Using different interrupt determination criteria, we will obtain the optimal interrupt and re-estimate the VAR model by applying the optimal interrupt.

• To determine the long-run economic relationships between the variables in the model, we will use the Johansen test.

• By calculating the long-run relationships between the variables obtained from the previous paragraph and imposing it on the VAR model, we will obtain the model coefficients.

VCE Model: Because the use of variables that are not reliable in estimating the coefficients of a model leads to false regression, usually the first or second degree difference of a variable is used to estimate the coefficients. Apart from the problems that this method faces, using the difference of variables in model estimation will lead to the loss of valuable information in the long run. This will become more acute when the variables in a system have long-term relationships (cointegration). However, despite the long-term relationships between the variables, there will be no false regression. The existence of long-term relationships between economic variables provides a statistical basis for the use of error correction models. As a definition of error correction patterns, it can be said that these models are models that relate short-term fluctuations of variables to their long-run equilibrium values.

Research purpose and hypotheses

In general, the main purpose of this study is to investigate the effect of changes in foreign prices (exchange rate changes) and changes in inflation rates on the inflow of capital to Iran. Also, based on the main research problem, the researcher considers the following hypotheses:

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The first main hypothesis: changes in domestic prices (changes in inflation rates) have a significant effect on the inflow of capital to Iran and transfer payments to Iran.
The second main hypothesis: changes in foreign prices (exchange rate changes) have a significant effect on the inflow of capital to Iran and transfer payments.

Unit root test (static variables):

The unit root test is one of the most common tests used today to determine the significance of a time series process. The face of the yt series is anonymous. Therefore, if the coefficient of the above equation is estimated by the ordinary least squares method and tested for its uniformity, the significance or invariance of a time series process can be proved. One of the most common tests in this field is the Dickey-Fuller test. (ADF). The ADF test results for all variables are reflected in Table (1).

Table 1. ADF test results

Variable type	Critical values at 95% level	t value	Variable
I(0)	-2.95	-5.72	p
I(1)	-2.95	-5.84	rer
I(1)	-2.98	-4.35	oil
I(2)	-2.95	-4.44	k
I(1)	-2.95	-5.99	TR+FDI

Source: Research Finding

Johansson Josilius test (co-integration test):

Tables (2) and (3) illustrate the results of the Johansen co-integration test using two effect statistics and maximum eigenvalues to determine the long-run relationships between the variables used.

Table 2. Determining the number of cohesion vectors through effect test

Number of co-integration vectors H_0 (assumption)	**Special values**	**Effect Statistics (Trace)**	**Critical values at 95% level**
Zero	0.969309	188.9864	95.75
At least one long-term relationship	0.836112	94.067	69.81
*At least two long-term relationships	0.561432	46.09621	47.85

*As can be seen, the hypothesis is not rejected and therefore a long-run correlation with the Effect statistic is obtained at the 95% level.

Table (3). Determining the number of cohesion vectors through eigenvalue testing.

Number of co-integration vectors H_0 (Assumption)	**Special values**	**Statistics of special values (Maximum Eigen Value)**	**Critical values at 95% level**
Zero	0.969309	94.07752	40.07
At least one long-term relationship	0.836112	48.83147	33.87
*At least two long-term relationships	0.561432	22/25450	27.58

*As can be seen, the hypothesis is not rejected and therefore a long-run correlation of 95% is obtained with the eigenvalue statistic.

Explanation of Table (3): In the first line, considering that the maximum eigenvalues are greater than the critical values at 95% levels. (07/40 05572/94), the assumption that it is 0 (there is no long-term relationship) is rejected and we will accept the assumption that there is 1 (there is a long-term relationship). But since the assumption must be accepted, then we will go to the second line, the assumption in the second line is 1 (there is at least one long-term relationship) and the assumption is in the form 2 (there are two long-term relationships), in the line Second, as can be seen, at the 95% level, the eigenvalues are larger than the critical values.
(48/83 83147/48), so the hypothesis that there is at least one long-term relationship is rejected and the hypothesis will be accepted, so we go back to the third row, where we see that the eigenvalues are smaller than the critical values (58/27 <22450/22), so the assumption that there are at least two long-term relationships is acceptable. Once the number of long-run relationships between the variables is determined, in the next step we will impose these relationships on the VAR model. For this purpose, we will first explain the error correction patterns.

Analysis of the results of estimating the research model by VEC method:

In the previous part, by performing the Johansen test, the existence of two long-run relationships between the variables used in the following research was proved. Now, if we impose this relationship on the VAR model, we will obtain the coefficients of the variables in the model. Applying a long-run relationship yields the following equation:

$$Log(\mathrm{TR} + \mathrm{FDI})) = 286.9 - 6.4Log(RERFV) - 2.04Log(PFV) + 18.8Log(K) + 11.8Log(OIL$$

Statistics in parentheses are t statistics. Inflation uncertainty is also simulated with ARIMA (5, 1, and 5) and EGARCH (0, 1) models, and exchange rate uncertainty is simulated with ARIMA (4, 1, and 4) and EGARCH (1, 0) models. Here, because it is not the main subject of the research, the explanation of how to estimate it has been avoided, but the results of estimating exchange rate uncertainty and inflation are given in the appendix. As can be seen, the results of applying a long-run relationship to the VAR model, and capital stock and oil prices, and the negative relationship between inflation uncertainty, show

exchange rate uncertainty towards foreign direct investment.

Results

Now, having the above coefficients and equation, we will interpret the coefficients:

- The coefficient of width from the origin shows the figure 286.9, which indicates the average effect of other variables that have affected the inflow of capital to Iran and transfer payments, but have not entered the model, as seen in other The variables that are not present in the model have a positive effect on FDI + TR and have increased it, so that increasing the average of these variables by one unit has increased the inflow of capital to Iran and transfer payments by 286.9 units. It should be noted that the t-statistic related to the above coefficient is not presented in the estimation performed using Eviews software and VEC method.
- The log variable (RERFV) represents the fluctuations of the real exchange rate (foreign price shocks), and its coefficient in the model shows the figure of 6.4, according to the t-statistic of this variable, which is equal to 5.4 the corresponding coefficient is significant at the 95% probability level. Therefore, as expected (negative effect), a one percent increase in exchange rate fluctuations and the stabilization of other variables will reduce the inflow of capital to Iran and transfer payments by 6.4 percent.
- The log variable (PFV), which indicates the internal price shocks in the country and shows the inefficiencies of the policies adopted in the country, has a negative sign and is consistent with what was expected. The corresponding t-statistic also shows the figure of 1.4, with a 95% probability level in the long run has had a negative effect on foreign investment, so that a unit increase in inflationary uncertainty, with other conditions, a decrease of 0.04 2% of capital inflows to Iran and transfer payments.
- The variable log (K) indicates the capital stock in this model has a positive coefficient of 18.8, the statistic t is equal to 2.8 means that in the long run with a probability level of 95%, has a positive effect, so that the increase One unit of capital stock will increase the FDI by 18.8 units if other conditions are constant.
- And in the last part, the log oil price coefficient (OIL) gives us the figure 11.8, which is the corresponding t-statistic is 13.1. In the long run, with a 95% probability level, it has had a positive effect, so that with a one percent increase in oil prices, we will see a significant 11.8 percent increase in the inflow of capital to Iran and transfer payments.

Recommendations

According to the obtained results, the following items are suggested to improve the flow of capital inflow to Iran and transfer payments:

- Exchange rate is an effective factor in the process of capital transfer. Exchange rate stability increases confidence in the domestic economic environment and rationalizes investment decisions for present and future. Extensive exchange rate fluctuations and fluctuations lead to large-scale changes in the value of assets, making it difficult to price and analyze cost-benefit plans. Exchange rate fluctuations also pave the way for financial abuses and deepen economic instability.
- Inflation leads to a decrease in the value of domestic assets, so capitalists and citizens prefer to change their optimal composition in favor of foreign assets in order to maintain the real value of their assets (capital outflow). On the other hand, rising prices reduce the net profit of investment and the value of assets and reduce the inflow of capital into the country. Inflation increases investment risk, reduces the average maturity of commercial loans, and disrupts the information transmitted by prices. Inflation is a sign of instability and lack of control over macro policies and is negatively related to the inflow of capital to Iran and transfer payments.
- Human capital in Iran directly and significantly affects the inflow of capital flow to Iran and transfer payments. The positive and significant coefficient of this variable indicates that the increase in human capital reduces the cost of production and increases the profitability of domestic and foreign investors and thus increases the ratio of foreign direct investment to real GDP.
- According to recent research, the increase in oil prices in the last two years has had the greatest impact on foreign direct investment in the energy sector. As can be seen in this study, it has a significant positive coefficient (11.8). This effect was largely due to the forecast of the International Energy Agency. The agency estimated that rising energy consumption over the next three decades would require $ 16 trillion in energy investment. In other words, $ 533 billion a year. Accordingly, the attraction of foreign direct investment in the energy sector is already evident. The growth of foreign direct investment in petroleum products and oil exploration is 10% and 32%, respectively. Because our country has huge oil and gas resources and with a crude oil production capacity of 4.2 million barrels per day, it is ranked fifth among the largest oil producing countries in the world. Therefore, efforts to increase investment security through stability in government policies and the lack

of continuous change of laws can be considered as the first priorities to encourage foreign investment in this sector and other sectors. Exchange rate fluctuations are another factor that has had a negative effect on foreign direct investment in Iran. In this regard, reforming and stabilizing the country's foreign exchange system can play an effective role in attracting capital inflows to Iran and transfer payments.

- Now that the issue of privatization and transfer of important economic enterprises in the country has been seriously raised, the need to create an institution or organization to introduce investment opportunities in the country, is felt.
- Considering the important role that foreign direct investment plays in technology transfer and financing of countries' investments, countries should adopt strategies that maximize their benefits and minimize the losses. In this regard, the laws (monetary, financial, and commercial) of the host country play a very important role, and in fact, the laws should be regulated in such a way as to make optimal use of foreign direct investment, in line with national programs. Be provided.

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