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The impact of economic freedom on the likelihood of economic crisis occurrence

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Abstract:

The economic crisis in the past centuries has had a detrimental effect on the performance of the economy in different countries. The present study examines the impact of economic freedom on the occurrence of economic crisis in 150 countries over the period 2005-2007. To achieve this goal, the Logit Panel model was used in this study. Four aspects of the key of economic freedom have been used as independent variables in estimation, the two variables of government size and regulation efficiency had no significant relationship with the economic crisis. Our estimation suggests that there is a positive and significant relationship, however small, between the market openness variable and the probability of economic crisis. There is also a slight inverse relationship between the rule of law and the likelihood of a crisis.

Keywords: Economic Freedom, Crisis, Institutions
JEL classification: O43 , O11 , P16

1. Introduction

The world has suffered from many economic crises in the last century. In the 1930s, the world economy was in a great depression. The Great Depression of the decade led to a sharp decline in economic growth and employment and a general fall in prices throughout the world.

In the 1980s, as financial markets developed more dynamically than the other markets. The financial market was exposed to continued instability, and the negative impact of this instability was first felt in developing countries, which were damaged by deep and costly financial crises. With the bubble formation in the stock market, real estate that took place in the second half of the 1980s and the volatility of financial markets began to develop into industrialized countries.

The Asian financial crisis began around 1997 and faced many economic problems in East Asia. One of the most important reasons for the crisis of the lack of productivity growth of the factors of production during the economic boom of the 1990s and the growth of production was enhanced due to the capital entry. The defective financial structure of the companies, the weakness of their financial systems, are another cause of the East Asian crisis.

The systemic financial market crisis began along with mortgage crises in 2007 and the relatively insignificant part of the world system sparked the crisis. The crisis that hit the financial system was much deeper than the mortgage problem. The crisis began in the United States and spread worldwide because of the globalization of financial markets and the convergence of international financial intermediaries.

The effects of the financial crisis on the world economy can be attributed to lower productivity at the community level, increased unemployment due to downturns in the economy, increased mistrust in economic and commercial transactions, lower bank interest rates, reduced total demand for goods, restricted capital inflows into economic sectors. Given that economic crises have had damaging consequences, we need to study all the factors that may have an impact on the economic crisis. Economic freedom is one of the factors that can have a major impact on the occurrence or non-occurrence of the economic crisis.

2. Basic considerations and literature

Economic freedom in essence means that individuals are free to interfere with, exchange and transact their personal possessions which obtained by law. Since freedom is defined as the absence of necessity, pressure, or restriction in the choice of action, and the economy associated with the production and distribution of goods and services, economic freedom can be defined as: " the interpretation of the imposition or restriction of the production and distribution and consumption of goods;"(Johnson et al., 1999)

Gartney defines economic freedom as: "People will have economic freedom if:

1 - The assets they acquire should be free from force, fraud and theft and also be protected from aggression by others. 2- Individuals are free to use, exchange, or maintain their property without undermining the rights of others. (Gartney et al., 2005)

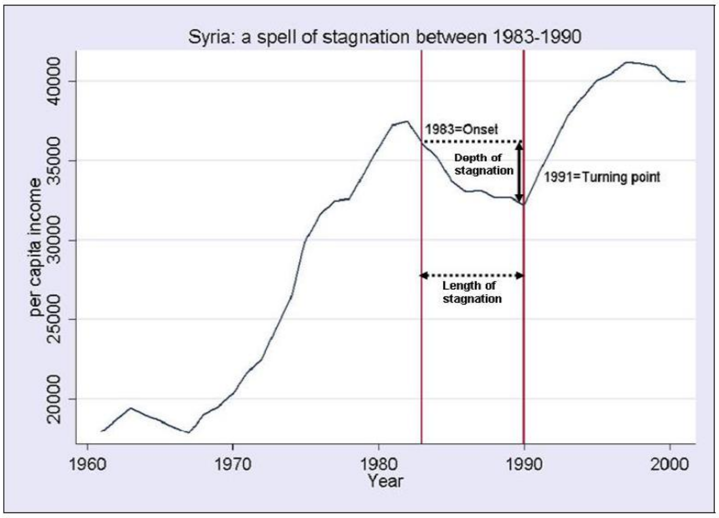
Adam Smith intertwined the foundations of the classical tradition of "natural liberation system." Therefore, it is virtually impossible to address controversial issues in the economy without defining freedom. The concept of natural freedom in classical thought is "freedom of action and exchange". This freedom is one of the basic human rights, and any obstacle that causes disorder in that disrupts and deviants the system of natural liberty. Adam Smith mentions the progress or failure of states because of the limits of freedom that are crystallized in natural laws (Samadi, 1995). Economic freedom is one of the first principles he has emphasized and regarded as one of the most important components of economic growth. (Samati et al., 2006) The concept of freedom in the classical school has been more explicitly expressed by John Stuart Mill. "The individual freedom to pursue one's own interests is to the extent that it does not deprive others of such a right is meaningful. (Mill, 1963).

Hayek calls freedom a release from coercion. Accordingly, freedom cause redistribution of wealth and income. "True freedom will bring about justice and will be the path of freedom toward justice. But in the absence of justice, freedom is in a state of uncertainty."(Hayek, 2000).

Friedman has examined economic freedom from different angles. One of these angles is equality of opportunity as a result of freedom. He says: "Equality of opportunity and equality of human beings is a very good cause against the law, and it leads to the flourishing of human talents, and has no conflict with political freedom. But as we abandon equality of opportunity and equality before the law and seek to equalize our gains, we step on an abnormal process and in the process, not only equality of achievements will not be achieved, but also the equality of opportunity and equality before the law, as well as freedom of the people will be missed. "(Friedman, 1988).

From Amartya sen point of view, freedom has a general meaning that its results cause development. One of the indicators he emphasized is social opportunity. From the Amartya sen perspective, freedom is not only one of the primary goals of development, but also one of the main means of development. Instrumentally, the five types of political freedom, economic opportunity, social opportunity, clarity and transparency of commitments and social and supporting security complement each other, and each of them can help to the individual's overall development and capability. Political freedom contributes to the expansion of economic security and enables social opportunities for economic participation and economic opportunities can provide the public resources needed for social facilities. (Amartya sen, 2010).

Reddy considers recession to be negligible or negative real income growth for negligible or negative consecutive years, the endless sequence of years of weak growth represents a period of recession. Countries suffering from real income stagnation are poor, they are conflicted and depend on export of staple goods; and the recession continues for these countries. Reddy has used new concepts to identify periods of recession. He defines the beginning of a recession as a year in which the real per capita income of a country is less than ever in the past two years and higher than ever in the next four years. Defines the return point as a year where the country's real income is at least one percent higher than the previous year and at least one percent lower than the following year. The length of the recession period is defined as the period from the beginning of the recession to the return point. Also the depth of the recession period is as the difference between the income at the start and the minimum income during the recession (Reddy & Minio, 2005) Reddy has illustrated this in a graph:

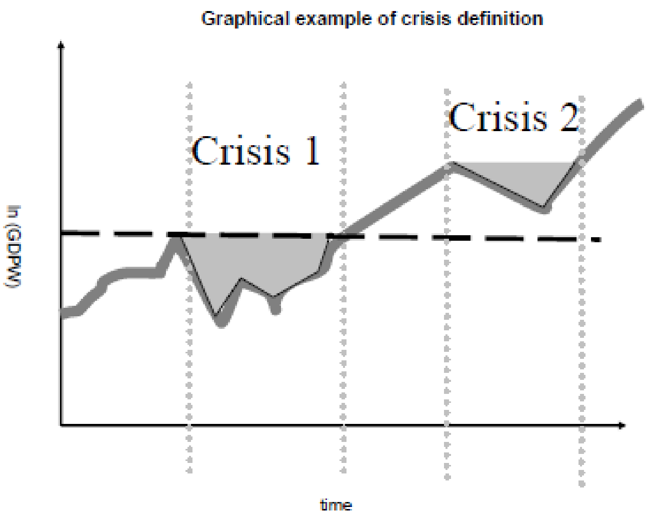


Recession period between1983-1990

Hassman describes the crisis as a time when it begins with contraction in the production of every worker and it ends when the value of production is restored before the decrease, this means that the rate of production of each worker will return to the pre-crisis level. Thus, the crisis that occurs between the time t and t + j is as the average of growth rate equal to zero and for each period between t + j-e for each e <j the average of growth rate is negative. In other words, the crisis cannot begin for the countries that are currently in crisis, in other words, if y_t <y_ (t-1), the crisis begins if: (1) There should be no y_ (t-j)> y_ (t-1) that is, y_ (t-1) has the highest value (2) If y_ (t _ (- j))> y_ (t-1) exists, it means we are in crisis. The following diagram illustrates the crisis regarding this definition. (Hassman et al., 2006)

A graph example for the time of crisis

To calculate the crisis index, Hassman multiplies GDP of each person of working age in the world fixed currency. It uses the labor force because it is the best



representative for measuring labor force. The duration of the crisis is described by Hasman as the number of years between the beginning and the end of the crisis. Hassman also has another definition which is the ratio between GDP for each person immediately before the crisis, and its lowest value during the crisis. (Hassman et al., 2006)

2-1.The relationship between crisis and economic freedom

In examining the relationship between crisis and economic freedom, it is important to note that there are agree and disagree ideas in this regard. That is, economic freedom both increases and decreases volatility. They are listed below: One of the determinants of economic freedom index is the government size. In a free economic system, the state does not interfere with the economy it produces only public goods that the private sector cannot produce. In his famous book, The Wealth of Nations, published in 1779, Adam Smith argues that prices and wages must be free of government intervention and determine based on the mechanism of prices (supply and demand balance). Adam Smith, as the leader of classical economists, has argued the existence of an invisible hand in economy, the invisible hand is the pricing mechanism that because of market sovereignty, full competition in all economic markets, always brings a lasting balance. After the occurrence of economic recession and the great stagnation of 1930s, the classics believed to leave the crisis alone to reduce wages and the interest rate descends and bankruptcy happens in order to institutions that are inefficient and unable to match the finished price of their products to the prices that are falling, get out of the market and those institutions that are able to resist, fire the extra workers and by making continuous efforts to reduce production costs, make technical progress possible and in conclusion, institutions that can't fit in with the time technique will disappear and the boom will be replaced by recession.

With the publication of his famous book The General Theory of Employment, Interest and Money 1936, keyens heavily questioned the ideas of economic liberalism. According to Keynes, the only solution to the recessionary crisis of the 1930s is for governments to interfere economically to create or increase effective demand. Because he believed that the lack of effective demand produced a lack of motivation and the shortage of production also increases unemployment and again causes the shortage of effective demand. Keynes, therefore, prescribed government intervention to exit this vicious circle. Although the 1960s is the decade of the enormous influence of Keynes and his followers on economists and policymakers, but the poor performance of industrial economies in the 1970s led to widespread mistrust of Keynesian theories. Friedman published the book of Capitalism and Freedom in the year of 1962 and he defended the diminishing role of government in the free market to create political and social freedom and he actually opposed Keynesian views. The means of economic communication in today's world is trade and commercial liberalization. It seems inevitable for closed economies to liberalize and increase trade in the near future. But this cannot be seen as a reason for the expansion and liberalization of trade without limitation. The experience of various countries around the world in liberalizing and expanding trade shows that this policy can have different effects in countries with different economic and social structures. (Razmi et al., 2010) After the Asian financial crisis, it has become clear that the closed economy cannot have a crisis due to the flow or outflow of capital. On the other hand, allowing capital inflows and outflows to the country can improve economic efficiency (Beckert et al., 2005). Similarly, bans on stock exchanges prevent the stock market from collapsing on the other hand, opening the stock market can improve the country's prospects for economic growth (Bayer et al., 2004). International trade plays an important role in a phenomenon called "contagious effect". This means that the crisis created in one country causes a new crisis in another country with relatively good conditions. Most economists believe that international trade is one of the most important factors in the distribution of the financial crisis. (Zihui and Leonard Cheng, 2003).

Many economists believe that protected property rights affect economy through multiple channels. Some studies have emphasized the impact of guaranteed property rights on entrepreneurial and technological activities, economic growth, investment, economic factor accumulation, foreign direct investment, savings, trade, bribery and governance, social capital accumulation, and efficient use of resources (Samadi et al., 2007).

Waltz (1998) argues that it is essential to return to the basics and to address the crisis of property rights since the main basis of all investment formation and economic growth is property rights. In this regard, Johnson, Bowne, Brich, and Friedman (2000) argue that they explain the importance of investor protection and enforcement of property rights in Asian markets better than macroeconomic criteria. Laporta et al. (1997) argue that the country's legal environment is crucial to protecting investors and affecting the amount of market investment. Lee (2000) emphasizes that greater economic freedom is associated with greater investor support and greater market investment. Stoker (2005) points out that the increase in economic freedom provides the efficiency of investment more than average. Therefore, investors seeking better efficiency on investment should choose countries that are improving economic freedom for investment.

Economic freedom may reduce volatility for example, freedom to set wages, contracts and prices may prevent deficits or surpluses and help the economy absorb the shock rather than losing production. Freedom of ownership and access to the right money can reduce uncertainty and provide a safe and secure environment for economic growth. Government supervision over the money supply could theoretically be used to smooth business cycles. (Campbell & Snyder, 2012) However, economic freedom can also increase instability in many ways. Economic freedom for creating business and freedom in commerce can lead to some business failures and that can increase the fluctuations, such as the economy that enters into new technology and product adjustments. Free trade and investment in foreign assets may exacerbate internal shocks. Open capital markets also mean that funds can quickly enter or exit the economy because they are less interested in stagnation, they may also reduce the number of their employees in the face of stagnation. (Campbell & Snyder, 2012)

Economic freedom is the motive force why some societies grow while others do not. Lowe (2011) believes that economic freedom leads to economic boom and the country's economic freedom is accompanied by capital market development and financial stability. Entrepreneurship is one of the channels through which market institutions may contribute to economic instability. Indeed, there is a connection between entrepreneurship and business cycle activities in some of Schumpeter's early writings. Schumpeter observed the cycle as a result of the waves in innovation and entrepreneurship dynamics. Recessions are an essential part of the capitalist economy that is, old products and firms disappear in every period, and entrepreneurs introduce new products. Schumpeter points out that as soon as social resistance to the introduction of new products that is essentially meaningless disappears, it becomes easier to introduce new products. (Davidson, 2010)

Data

The research period for the 150 countries with available data is 2005 to 2017. In this study, the model investigated is the Logit Panel with fixed effects. The index of economic freedom focuses on four key aspects of the economic environment: rule of law, size of government, regulatory efficiency and market openness that we use as independent variables. The Heritage Foundation's Index of Economic Freedom was first introduced in the late 1980s. The purpose of its introduction has been to measure empirically the level of economic freedom in countries around the world. For this purpose a set of economic criteria has been considered and since 1994 this criterion has been used to rank different countries in the annual release of the Economic Freedom Index. Assessment of conditions in these four categories is carried out by 12 component indicators, that each of these indices is rated on a scale of 0 to 100. Each of these 12 indices is weighted equally to produce an economic freedom score. These indicators are:

Rule of Law

1- Property Rights: It means the ability of individuals to accumulate private property and is supported by domestic laws that are enacted by the government.
2- Judicial effectiveness: An indicator for measuring the efficiency of the judiciary. An effective legal framework that is necessary to protect the rights of all citizens against the unlawful actions of others, including governments and powerful parties that requires an efficient and fair justice system to ensure that the laws are fully respected and that appropriate legal action is taken against the rights of the citizen.
3- Government Integrity: Corruption causes the erosion of economic freedom by creating insecurity and uncertainty in economic relations. The most worrisome is the systematic corruption of government institutions and decisions such as bribery, extortion, sedition, embezzlement and abuse. The lack of government integration results from such actions, reduces economic power and increases costs and transfer of resources to unproductive activities. The score for this component is obtained by averaging the scores for six items: public trust in politicians, irregular payments and bribes, transparency of government policy, lack of corruption, perception of corruption, and transparency of public and civil services of equal weight.

Government size

4- Government Expenditure: This index covers all government spending (such as consumption and transition payments) and government agencies. Ideally, the state should produce public goods by interfering with the economy.
5- Tax burden: The tax burden is a composite scale that represents the final rates of personal and corporate income tax and the total tax rate (including direct and indirect taxes levied by all levels of government) as a percentage of GDP.

6- Financial health: Increasing budget deficits and increasing debt, both are caused by poor government budget management, and lead to a decrease in financial health. In turn, declining financial health is associated with macroeconomic instability and economic uncertainty. Debt is the accumulation of deficits over time. In the theory of public debt, the positive role of productive investment that leads to economic growth must be considered. However, the increase in public debt caused by ongoing budget deficits, especially the costs spent on increasing consumption or government payments, often reduces productivity. And it eventually leads to recession rather than growth.

The efficiency of regulation

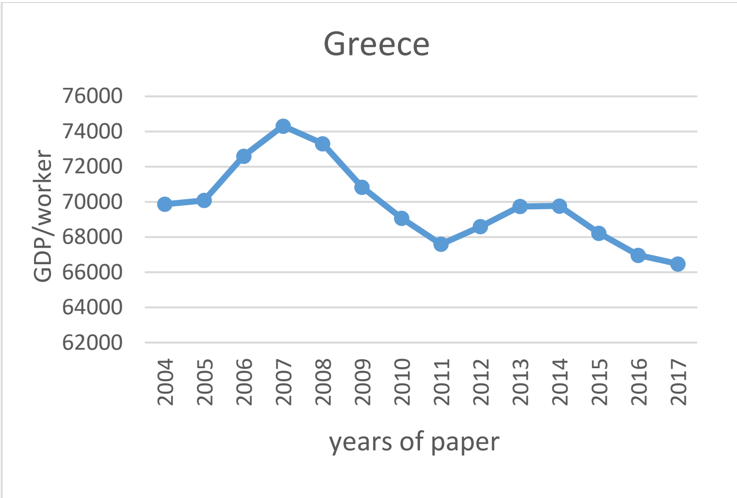
7- Business Freedom: The ability of individuals to create, perform, or finish an easy business. Excessive and burdensome laws are one of the most important obstacles of commercial freedom.
8- Labor force Freedom: It measures the degree of freedom of workers and firms in equilibrium and in the situation that government intervention doesn't exist.
9- Monetary freedom: An indicator to measure price stability. Inflation as well as price controls in the economy disrupt market performance. Price stability and non-interference in the economy are essential for a free market.

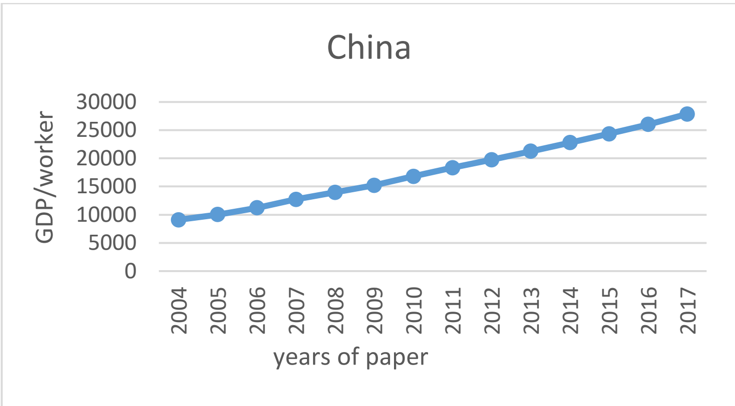
Market openness

10- Foreign Trade Freedom: It is a composite indicator and requires no tariff barriers. Tariff and non-tariff barriers limit the export and import of goods and services.
11- Investment Freedom: An indicator for assessing the free flow of capital in the economy. This index particularly encompasses the flow of freedom of foreign capital.
12- Financial Freedom: An indicator for measuring the degree of independence of banks from the government is that the state ownership of banks and other financial institutions, such as insurance and the capital market, diminishes the efficiency of these institutions and has no place in the free capital market. (Heritage Foundation, 2017)

We use the Hassman approach to estimate the crisis that is, the critical time that occurs between the time t and t + j is equal to the average growth rate of zero and for any period between t + j-e for each e <j the average growth rate is negative. In other words, the crisis cannot begin for the countries that are currently in crisis in other words, if y_t <y_ (t-1), the crisis begins if (1) There should be no y_ (t-j)> y_ (t-1) that is, y_ (t-1) has the highest value (2) If y_ (t _ (- j))> y_ (t-1) exists, it means we are in crisis. To calculate the crisis index, Hassman multiplies GDP for each person of working age that is, it multiplies GDPW in the world fixed currency (The constant US dollar rate of 2011). And to make sure that the crisis is not confused with short-term recessions, we use the Christian Bjørnskov method, this means that the crisis will continue until GDP for every working age returns to pre-crisis levels.

Crisis charts





Source: Research data

Result

Fleimer and Hausman test

We use the Flimmer test to decide between the fixed effects method and the ordinary least squares method. The results show that with a 95% probability the H0 hypothesis based on the same width is rejected by the source. The above test not only examines the acceptance or rejection of fixed effects but also does not reliably select fixed effects. We use the Hausman test to decide whether to apply the fixed effects (FE) or random effects (RE) methods. The null hypothesis of this test is that the raters of fixed effects and random effects are essentially no different. If the null hypothesis is rejected, the result is that the random effects are incorrect and the use of fixed effects is better. According to Hausman's statistics, the hypothesis of constant effects is confirmed at the 95% level. The results of the Fleimer and Hausman tests are presented in Table1.

Table 1- The results of the Fleimer and Hausman tests

Possibility	Test statistics value	Test statistics	Type of test
0.00	14.57	F	Fleimer
0.0102	13.22	H	Hausman

Source: Research findings

Pattern Estimation Results

Our estimation is based on the Logit Panel method and the results are presented in Table 2.

Table 2 - Results of the Logitech Panel Template

Possibility	statistic Z	Coefficient	standard error	Variable name
0.014	2.46-	0.043907	00.178466	Rule of law
0.233	1.19	0.0167847	0.0140873	Government size
0.267	1.11	0.02431470	0.0218891	Regulators' efficiency
0.014	2.46	0.0468142	0.0190171	Market openness

Source: Research findings

According to the table data, the 95% probability level of rule of law (property rights, judicial effectiveness, government integrity) has a significant and negative effect on the likelihood of a crisis occurrence, however, by changing one unit in the rule of law, reduces the chance of a crisis occurrence about 0.043. At the 95% probability level, two components of government size (government spending, tax burden, financial health) and regulatories efficiency (business freedom, labor force freedom, monetary freedom) do not show a significant relationship with the occurrence of the crisis and cannot be interpreted. Also market openness (foreign trade freedom, investment freedom, financial freedom) has a positive and significant effect on the chances of a crisis however, by changing one unit of market openness, the probability of a crisis increases about 0.046.

Discussion and conclusions

This research examines the sub-index of economic freedom and its impact on the occurrence of the economic crisis, which includes all countries of the world which during the years of study (2005-2007), its statistics and data were fully available and contains 150 countries.

Regarding the economic crises of recent centuries that have caused many different economic problems such as widespread unemployment, falling demand, declining production, and so on, which has caused discontent in different societies, we need to look at the factors that can prevent the economic crisis from happening. Economic freedom is one of the components which its impact on the crisis should have been studied. And after examining the impact of that gained results implies a very low relationship of economic freedom with the economic crisis.

As the results of the estimates reveal, out of the four key aspects that we used as independent variables, two variables of regulation efficiency and size of government had no significant relationship with the likelihood of a crisis occurring and therefore cannot be interpreted. According to the results of the research, the rule of law has a negative impact on the occurrence of the crisis that is, by increasing the chance index, the occurrence of a crisis decreases, though this effect is very small. However, supports the theoretical foundations of this issue. The rule of law index is derived from the average property rights, judicial effectiveness, and government integrity. Given that the motivation and basis of any economic activity is property rights, then an increase in the property rights of sub-index has led to an increase in economic activity that promotes economic growth and avoids economic crises. Judicial effectiveness is essential to protect the rights of all citizens against the illegal actions of others, including governments and powerful parties; increasing the integrity of the government also means reducing systematic government corruption and reducing bribery, extortion, embezzlement and so on. The lack of government integrity resulting from such actions reduces economic power and increases costs and transfer of resources to unproductive activities, which increases the chances of an economic crisis.

In relation to the market openness index has a positive effect on the occurrence of the economic crisis (although it has a minor impact), that is, increasing market openness increases the chances of a crisis. The market openness index is derived from the mean of foreign trade freedom, investment freedom, and financial freedom. Freedom of foreign trade means the complete elimination and reduction of tariff barriers, and the existence of tariff and non-tariff barriers limits export and import. Clearly, the openness of unlimited trade gates is one of the most important causes of the economic crisis. As trade liberalization differs in each country according to different economic and social structures, policymakers need to make more careful decisions about removing trade tariffs. Investment freedom is an indicator for evaluating the flow of capital freedom in the economy. This index particularly includes the free flow of foreign capital. Regarding that capital inflows and outflows to the country increase economic efficiency, and on the other hand, it is clear that closed-flow economies do not suffer from economic crisis or "contagious phenomenon". Financial freedom reflects the degree to which banks are independent of the government. State ownership of banks and other financial institutions such as insurance and capital markets reduces the efficiency of these institutions and has no place in the free capital market. The same decrease in the efficiency of insurance and the capital market is causing volatility and economic crisis. So, in order to be open to the market, one must act more cautiously and decide according to the circumstances of each country.

Appendix
Fleimer test

```
. xtreg crisis govermentsize openmarkets ruleoflaw regulatoryofficiency , fe

Fixed-effects (within) regression               Number of obs     =      1,950
Group variable: a                               Number of groups  =        150

R-sq:                                           Obs per group:
     within  = 0.0070                                         min =         13
     between = 0.0321                                         avg =       13.0
     overall = 0.0111                                         max =         13

                                                F(4,1796)         =       3.15
corr(u_i, Xb)  = -0.3389                        Prob > F          =     0.0137

------------------------------------------------------------------------------------
              crisis |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
---------------------+--------------------------------------------------------------
       govermentsize |   .0022317   .0016243     1.37   0.170    -.0009541    .0054174
         openmarkets |   .0042419   .0018727     2.27   0.024     .0005689    .0079149
           ruleoflaw |  -.0043385   .0018165    -2.39   0.017    -.0079011   -.0007759
regulatoryofficiency |   .0027237   .0023197     1.17   0.240    -.0018259    .0072733
               _cons |  -.0529445   .2012262    -0.26   0.792    -.4476066    .3417175
---------------------+--------------------------------------------------------------
             sigma_u |  .37593443
             sigma_e |  .33228582
                 rho |  .56139819   (fraction of variance due to u_i)
------------------------------------------------------------------------------------
F test that all u_i=0: F(149, 1796) = 14.57                  Prob > F = 0.0000
```

Hausman test

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. hausman fe re

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      fe           re          Difference          S.E.
-------------+----------------------------------------------------------------
goverments~e |    .0022317      .000547        .0016847        .0009739
 openmarkets |    .0042419     .0032118        .0010301        .0009828
   ruleoflaw |   -.0043385    -.0010017       -.0033368        .0012263
regulatory~y |    .0027237     .0015337          .00119        .0010913
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       13.22
                Prob>chi2 =      0.0102
```

Logit panel test

```
. xtreg crisis govermentsize openmarkets ruleoflaw regulatoryofficiency , fe

Fixed-effects (within) regression               Number of obs      =     1,950
Group variable: a                               Number of groups   =       150

R-sq:                                           Obs per group:
     within  = 0.0070                                         min =         13
     between = 0.0321                                         avg =       13.0
     overall = 0.0111                                         max =         13

                                                F(4,1796)          =      3.15
corr(u_i, Xb)  = -0.3389                        Prob > F           =    0.0137
```

crisis	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
govermentsize	.0022317	.0016243	1.37	0.170	-.0009541	.0054174
openmarkets	.0042419	.0018727	2.27	0.024	.0005689	.0079149
ruleoflaw	-.0043385	.0018165	-2.39	0.017	-.0079011	-.0007759
regulatoryofficiency	.0027237	.0023197	1.17	0.240	-.0018259	.0072733
_cons	-.0529445	.2012262	-0.26	0.792	-.4476066	.3417175
sigma_u	.37593443					
sigma_e	.33228582					
rho	.56139819	(fraction of variance due to u_i)				

F test that all u_i=0: F(149, 1796) = 14.57   Prob > F = 0.0000

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