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THE RELATIONSHIP BETWEEN NOMINAL INTEREST RATE AND INFLATION RATE: AN ANALYSIS ON THE VALIDITY OF THE GIBSON PARADOX

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Abstract

Gibson, in contrast to the Classical economic view, revealed the existence of a positive relationship from the wholesale prices index to the bond interest in the British economy in 1923. This relationship, which was later referred to as the "Gibson Paradox", constituted the subject of many theoretical and empirical work. In this study, it is also investigated a validity of the Gibson Paradox for Fragile Economies in the period 2000-2016. In investigating the validity of the Gibson Paradox, nominal deposit interest rate and inflation rate were used and in investigating the relationship between the two variables, Seemingly Unrelated Regression (SUR) Method was used. Seemingly Unrelated Regression Method has certain superiorities because it uses units within a system in estimation, takes cross sectional dependency into consideration and produces results separately with respect to each unit. When the results obtained are examined, a positive and meaningful relationship has been found between nominal deposit interest rate and inflation rate in all Fragile Economies. As a result, Gibson Paradox is valid in all Fragile Economies in the period 2000-2016.

Keywords: *Nominal interest rate, Inflation rate, The gibson paradox, Seemingly unrelated regression method.*

NOMİNAL FAİZ ORANI VE ENFLASYON ORANI İLİŞKİSİ: GIBSON PARADOKSUNUN GEÇERLİLİĞİ ÜZERİNE BİR ANALİZ

Özet

Gibson, 1923 yılında Klasik İktisadi görüşün aksine Britanya ekonomisinde toptan eşya fiyatları endeksinden tahvil faizine doğru pozitif yönlü ilişkinin varlığını ortaya koymuştur. Daha sonraki süreçte "Gibson Paradoksu" olarak ifade edilen bu ilişki çok sayıda teorik ve ampirik çalışmanın konusunu oluşturmuştur. Bu çalışmada da 2000-2016 döneminde kırılgan ekonomiler için Gibson Paradoksunun geçerliliği araştırılmaktadır. Gibson Paradoksunun geçerliliğinin araştırılmasında nominal mevduat faiz oranı ve enflasyon oranı kullanılmış ve iki değişken arasındaki ilişkinin incelenmesinde Görünürde İlişkisiz Regresyon (SUR) yönteminden yararlanılmıştır. Görünürde İlişkisiz Regresyon Yönteminin tahminlerde birimleri bir sistem dahilinde kullanması, yatay kesit bağımlılığını dikkate alması ve her bir birime ilişkin ayrı ayrı sonuçlar üretmesi anlamında belirli üstünlükleri bulunmaktadır. Elde edilen sonuçlar incelendiğinde kırılgan ekonomilerin tümünde nominal mevduat faiz oranı ve enflasyon oranı arasında pozitif yönlü ve anlamlı bir ilişkiye ulaşılmıştır. Sonuç olarak 2000-2016 döneminde kırılgan ekonomilerin tümünde Gibson Paradoksu geçerlidir.

Anahtar Kelimeler: *Nominal faiz oranı, Enflasyon oranı, Gibson paradoksu, Görünürde ilişkisiz regresyon yöntemi.*

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1. INTRODUCTION

The Interest rates and the general level of prices are two major macroeconomic magnitudes whose effects on economic variables can not be ignored. In economics, there are various definitions of interest. In short, the interest can be defined as the income of the capital supplied. Interest, which is applied to loanable funds and which is the rent price determined by the markets, is seperated into nominal and real interest. The real interest is the inflation-adjusted interest rate while the nominal interest rate is the current interest rate applied in the market.

Economists have developed various interest theories from the past to the present. Comprehensive studies on interest are based on Classical Economists. The most prominent feature of the Classical theory is that money has no effect on real variables in the long run, in other words, it defends that money is neutral. Accordingly, the real interest rate is affected from changes in the amount of money only in the short term, but it returns to its old level in the long run. Because, according to the Classics, interest rate is determined by real variables such as productivity and saving and the price level is determined by the money supply. That is, there is no relationship between the interest rate and the price level according to the Classical theory.

However, Gibson opposed this view. According to Gibson, the expansion in the money supply also raises both interest rates and the price level. Gibson, who studied on banking sector in the period when Britain applied the Gold Standard, reached the conclusion that, based on the data for 1773-1923 period, there was a positive relationship between the wholesale price index and the bond interest. This view, which is contrary to Keynes's Liquidity Preference Theory, is named as "Gibson Paradox" (Atkins and Serletis, 2003: 673). According to Keynes, while monetary expansion is creating a downward movement on interest rates, monetary expansion only for the conjunctural periods raises interest rates by leading to inflation (Keynes, 1930: 200-208; Künü, Başar and Bozma, 2017: 213). The view that increasing inflation will also increase interest rates can be shown by Fisher (1930) Equation. As seen in Equation 1, the nominal interest rate (i) is the sum of the real interest rate (r) and the inflation rate (Π). Therefore, the increase in the inflation rates also increases the nominal interest rate.

$$i = r + \Pi \quad (1)$$

In fact, despite the fact that a positive relationship between interest rates and the level of general prices in the British economy was revealed for the first time by Tooke in 1844, Gibson empirically proved the link between these two variables in 1923 (Halicioglu, 2004: 2; Dwyer, 1984: 109). This relationship was later supported by the studies made by Kitchin (1923) and Peake (1928) (Halicioglu, 2004: 2).

After the Gibson paradox had been introduced, both the existence of the relationship between interest rates and the general level of prices and the direction of this relationship became disputable. On the basis all these approaches, in this study, the validity of the Gibson Paradox for Fragile economies in Morgan Stanley's report in 2013 is also empirically tested and the dimensions of the relationship between the nominal interest rate and the prices level in these countries are revealed for the period 2000-2016. Fragile economies are economies with high dependency on foreign capital due to their current account deficits and because of this, their currencies are depreciating (Morgan Stanley, 2013). In these countries, the possibility of the emergence of the inflation problem as a result of high interest policy to be applied for the solution of the current account deficits may cause that the external balance problem will affect the economic stability in the negative direction. Therefore, the main aim of this study is to identify problems related to possible economic stability within the framework of the Gibson paradox, based on the current account deficit problems of Fragile economies. In terms of data sets, unlike other studies in the literature, it was focused on the years after 2000.

The study consists of three parts, including the introduction part. The second part following the introduction is devoted to the results of studies analyzing the relationship between the nominal interest rate and the general level of prices for different periods and different country groups, based on the results found by Gibson in 1923. In the third part, the relationship between the two variables for fragile economies was examined and it was analyzed whether the Gibson Paradox was valid for the period 2000-2016.

2. LITERATURE REVIEW

Many theoretical and empirical studies on the validity of the Gibson Paradox have been carried out by economists. One of the studies on the Gibson Paradox was done by Sargent in 1973. In his study, Sargent (1973) examined the relationship between the nominal interest rate and the general level of prices in the period 1870-1940 for the US economy and suggested that there is a one-way positive relationship from the nominal interest rate to the general level of prices. In this sense, Sargent's view overlaps with Keynes's view in 1930 (Tanrıöver and Yamak, 2014: 188; Sargent, 1973: 447).

In another study published by Harley in 1977, a regression analysis covering the years between 1873 and 1913 was made for the United Kingdom, and as a result of this, it was stated that the positive relationship between interest rates and the general level of prices covers only the period of the gold standard (Harley, 1977).

In his study, in which he investigated the validity of the Gibson Paradox on the basis of economies of the United Kingdom, the United States, France and Belgium, Dwyer (1984) carried out an analysis based on the interest rates data and general level of prices data, including the period 1850-1913 though it was varied for the countries. The results obtained vary according to the investigated period and the country taken into consideration. While there is a positive relationship between the interest rate and the general level of prices for the United Kingdom, there is a positive relationship among these two variables for the United States and France only before the First World War.

Atkins and Serletis, in 2003, in their study on the validity of the Fisher Effect in addition to the Gibson Paradox in the examples of Canada, Italy, Norway, Sweden, the United Kingdom and the United States, chose 1880-1983 period for Canada and the USA, 1880-1985 period for Italy and 1880-1986 period for Norway, Sweden and the United Kingdom. In the study, in which the ARDL cointegration test was used, the result was that there was no cointegration between the series and therefore the Gibson Paradox was not valid.

In their study, Cogley, Sargent and Surica (2012) historically investigated the relationship between nominal interest rate and inflation in the US economy within the framework of the Gibson Paradox. In particular, the weak correlation between the two variables before World War I was seen to have increased in the 1970s, especially after the World War II, when high inflation was experienced. After 1995, the Gibson Paradox is said to be on the agenda again while the Gibson Paradox was falling off the agenda in the 1980s. The results of Cogley, Sargent and Surica showed that monetary policy implementations applied in the direction of inflation reduction and the reduction in price indexing practices in the period 1995-2007 played a major role in the Gibson Paradox's re-emergence.

Cheng, Kesserling and Brown (2013) investigated the relationship between nominal interest rate and inflation in China between 1873 and 1924 (silver monetary standard period). Although the relationship between nominal interest rate and inflation was weak when all the period was considered, a strong correlation was found between two variables in the sub-period of 1873-1883.

Ogbonne (2014), on the basis of quarterly data for the period 1970-2012, analyzed the long-run relationship between nominal interest rate and general level of prices, and the causality relationship between the two series in Nigeria. The results of the analysis show that there is a long-run relationship between the two series and that there is a one-way causality relationship from the nominal interest rate to the price level.

The studies on the validity of Gibson's Paradox in Turkey are also available. Halicioğlu (2004), in his study examining the validity of the Gibson Paradox for the period 1950-2002 in Turkish economy, showed that there is a positive relationship between the interest rate and the price level according to the results obtained within the framework of the ordinary least squares method. However, in the same period, there was no long-run relationship between the series according to Johansen cointegration test results.

Şimşek and Kadılar (2008), in their studies, have examined the long-run relationship between interest rates and general level of prices for Turkish economy using ARDL Bound Test approach. The results of the study, in which quarterly data between 1987-2004 are used, are consistent with the results obtained by Gibson.

Yapraklı and Yurttaçıkılmaz (2010), in their study on the validity of the Gibson paradox for Turkish economy for the period 1970-2009, have reached a long-run positive and significant relationship between general level of prices and nominal interest rate. In addition, the results of the Granger causality test show that there is a two-way causality relationship between the variables. Accordingly, Gibson's Paradox is valid for Turkish economy.

Tanrıöver and Yamak (2015), on the basis of quarterly data for the period 1990-2014, investigated the validity of the Gibson paradox for Turkish economy. In the study, in which the 12-month time deposit interest rate and the consumer price index were used, the results of the ARDL Bound Test show the existence of a long-term relationship between the two variables. This confirms the validity of the Gibson Paradox.

Koçyiğit, Kılıç and Bayat (2015), in their study, investigated the validity of Gibson's Paradox in Turkey for the period between January 2003 and May 2015. Based on the relationship between policy interest rate and consumer price index in the related period, the results showed that the Gibson Paradox is valid for Turkey for the period between January 2003 and May 2015.

Finally Altınöz (2017), examined the validity of the Gibson Paradox in Turkey for the period 1988-2015. The findings show the validity of the Gibson Paradox, but also point out that this relationship is unidirectional from general level of prices to nominal interest rate.

3. AN ECONOMETRIC ANALYSIS ON THE VALIDITY OF THE GIBSON PARADOX

The Gibson Paradox requires a linear relationship between nominal interest rate and general level of prices. In this paper, with reference to this relationship which was empirically proved by Gibson, the validity of Gibson Paradox for Fragile Economies is econometrically examined in the period 2000-2016.

In the report "Elections 2014: How Fragile are the Fragile Five?" titled report issued by Morgan Stanley in 2013, the term of "Fragile Economies" was used first time. According to this report, the countries described as a "Fragile Five" include South Africa, Turkey, Brazil, India and Indonesia. According to the report, the most important characteristics of these countries are that these countries are becoming more dependent on foreign capital because of high and rising current account deficits and that they are the ones whose currency units are depreciating. Moreover, political uncertainty was remarked due to the parliamentary and presidential election, which were held in five countries within 2014 (Morgan Stanley, 2013). In 2014, Chile, Poland and Hungary were added to those countries and it became "Fragile Eight".

Table 1: The Variables Used in the Study

Variable	Definition	Reference	Serial Number
nir	Deposit Interest Rate (%)	World Bank, World	FR.INR.DPST
inf	Inflation, Consumer Prices (Annual %)	Development Indicators	FP.CPI.TOTL.ZG

In this paper, in which the validity of Gibson Paradox for fragile economies is examined, the variables are deposit interest rate (%) (nir) on behalf of nominal interest rate and Inflation-Consumer Prices (annual %) on behalf of general level of prices. The information about variables is summarized at Table 1. When examining the data set belonging to the countries for the period 2000-2016, it was seen that the data belonging to India and Poland was largely uncomplete and those two countries were excluded from the scope of the paper. Deposit interest rate data in 2015 was used instead of the uncomplete nominal deposit interest rate in 2016 belonging to South Africa and Chile. So, the relationship between nominal interest rate and general level of prices and the validity of Gibson Paradox for "Fragile Six" economies is predicted by the models in equation 2 and equation 3.

$$\text{Model 1: } nir_{it} = \alpha_1 + \alpha_2 inf_{it} + e_{it} \quad (2)$$

$$\text{Model 2: } inf_{it} = \beta_1 + \beta_2 nir_{it} + v_{it} \quad (3)$$

Here, inf_{it} represents general level of prices and nir_{it} represents nominal interest rate. α_1 and β_1 represent fixed terms, e_{it} and v_{it} represent error terms. Stata 11 program is used to predict the models.

Table 2: Summary Statistics of Variables Based on Countries

Countries	Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
South Africa	nir	17	7.586	2.040	5.152	11.612
	inf		5.817	2.226	1.385	11.536
Turkey	nir	17	26.314	16.748	14.216	74.699
	inf		17.121	17.016	6.250	54.915
Brazil	nir	17	13.254	4.266	7.807	21.970
	inf		6.838	2.520	3.637	14.715
Chile	nir	17	4.539	2.002	1.751	9.200
	inf		3.263	1.867	0.071	8.716
Indonesia	nir	17	9.186	2.978	5.946	15.502
	inf		7.173	2.999	3.525	13.109
Hungary	nir	17	5.992	3.244	0.187	10.975
	inf		4.562	2.963	-0.222	9.780

In Table 2 above, for each of the Fragile six economies included in the analysis, there are summary statistics on nominal interest rate and general level of prices. Because the models have more than one time and unit size, panel data analysis is preferred. Seemingly Unrelated Regression (SUR) method of panel data analysis methods is used. This method allows individual results for each individual to be obtained. But, making similar equations separately for each country and analyzing and interpreting these equations can lead to untrue interpretations in case of cross sectional dependency. The cross sectional dependency is the situation in which the error terms in each equation are related to each other (Baltagi, 2005: 238).

Table 3: Cross Sectional Dependency Test Result for Model 1 and Model 2

Model 1: nir = f(inf)
Breusch-Pagan Cross Sectional Dependency LM Test: $\chi^2(15) = 32,257$, Prob. = 0,0059*
Model 2: inf = f(nir)
Breusch-Pagan Cross Sectional Dependency LM Test: $\chi^2(15) = 26,501$, Prob. = 0,0331**

Significance * % 1 and ** % 5. χ^2 ; Chi-square statistic.

Table 3 shows the results of the Breusch-Pagan Cross Sectional Dependency (Lagrange Multiplier) Test applied when $T > N$ for both models. When Table 3 is examined, it is seen that the probability value of the Lagrange Multiplier (LM) test is below 0.05 for both models and the basic hypothesis stating that there is no cross sectional dependency is rejected.

In this context, "Seemingly Unrelated Regression (SUR)" estimation method can be used because the error terms in the equations related to the countries in the study are related to each other, that is, there is cross sectional dependency (Yerdelen Tatoğlu, 2012: 52). The basic logic behind this model is that the error terms of the equations are correlated with each other although the equations are considered to be independent of each other (Vogelvang, 2005: 174).

SUR model was improved by Zellner (1962 and 1963). Zellner (1962: 378) performed parameter estimation by applying the Generalized Least Square technique, which Aitkin used in his study in 1935, to the whole system of equation. The estimation results obtained from the system solution yielded more effective results than the estimates obtained by applying the Least Squares Method to each equation individually (Zellner, 1962: 363).

Zellner also tested the results obtained in his 1962 study on a two-equation model in 1963 and had results close to his study in 1962 (Zellner, 1963: 988-989).

Moon and Perron (2006: 2) also pointed out two important factors in the use of the SUR model in their study. The first is to ensure the effectiveness of the prediction by using the information in different equations in combinations while the second is to consider the constraints of the parameters in the different equations.

The SUR model developed by Zellner (1962) is shown below by means of the equation systems.

$$y_{it} = \beta'_i x_{it} + u_{it} \tag{4}$$

$$\begin{matrix} \cdot \\ \cdot \\ \cdot \\ \cdot \end{matrix} \quad \begin{matrix} (i = 1, \dots, N) \\ (t = 1, \dots, N) \end{matrix}$$

$$y_{Nt} = \beta'_N x_{Nt} + u_{Nt} \tag{5}$$

In Equation 4 and 5, y_{it} is dependent variable, x_{it} is explanatory variable vector, u_{it} is error term, in case “it” is expressed as the observation of i^{nd} unit in t period. The representation of the above N equation system in a single equation is as follows.

$$\begin{matrix} y_1 & & x_1 & 0 & \cdot & \cdot & \cdot & 0 & & \beta_1 & & u_1 \\ \cdot & & 0 & x_2 & \cdot & \cdot & \cdot & 0 & & \beta_2 & & u_2 \\ \cdot & & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & & \cdot & & \cdot \\ \cdot & = & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & & \cdot & + & \cdot \\ \cdot & & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & & \cdot & & \cdot \\ \cdot & & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & & \cdot & & \cdot \\ y_N & & 0 & 0 & \cdot & \cdot & \cdot & x_N & & \beta_N & & u_N \end{matrix}$$

$$Y_t = X_t \beta + U_t \tag{6}$$

Y_t in equation 6 equals to $[y_{1t}, \dots, y_{Nt}]'$, X_t is block diagonal matrix, in whose diagonals (x_{1t}, \dots, x_{Nt}) exists, U_t and β is expressed respectively in the form $U_t = [u_{1t}, \dots, u_{Nt}]'$ and $\beta = [\beta_1, \dots, \beta_N]$ (Moon and Perron, 2006: 2; Zellner, 1962: 349-350).

In the solution of SUR model, the condition requiring that the size of the time dimension is larger than the unit size is also sought (Greene, 2003: 341). The presence of the seventeen-year data set of the six countries that make up the sample of the study and the fact that the error terms in the equations are related to each other suggest that SUR model can be used in the study.

Table 4 shows the estimation results of the SUR model for the Fragile Six economies in the study. When the descriptive statistics section is examined, it is seen that χ^2 statistical values of all models are meaningful. That

is, the results obtained for all of the sample are appropriate results. When Table 4 is examined, the results for model 1, which express the effect of inflation on interest rate, are shown on the left part of the table and the results for model 2, which express the effect of interest rate on inflation, are shown on the right side of the table.

Table 4: Seemingly Unrelated Regression Method Estimation Results

Countries	Dependent Variable	Independent Variable	Coeff.	Z Stat. (Prob.)	Dependent Variable	Independent Variable	Coeff.	Z Stat. (Prob.)
South Africa	nir	c	4.277	7.28 (0.000)*	inf	c	0.276	0.20 (0.842)
		inf	0.568	7.05 (0.000)*		nir	0.730	4.15 (0.000)*
	R ²	0.4566	χ^2 (Prob.)	49.67 (0.000)	R ²	0.4598	χ^2 (Prob.)	17.25 (0.000)
Turkey	nir	c	10.126	5.76 (0.000)*	inf	c	-8.180	-3.52 (0.000)*
		inf	0.945	13.89 (0.000)*		nir	0.961	13.28 (0.000)*
	R ²	0.8884	χ^2 (Prob.)	193.00 (0.000)	R ²	0.8887	χ^2 (Prob.)	176.37 (0.000)
Brazil	nir	c	6.316	4.36 (0.000)*	inf	c	0.949	0.87 (0.384)
		inf	1.014	5.61 (0.000)*		nir	0.444	5.92 (0.000)*
	R ²	0.4293	χ^2 (Prob.)	31.50 (0.000)	R ²	0.4239	χ^2 (Prob.)	35.01 (0.000)
Chile	nir	c	2.200	3.42 (0.001)*	inf	c	0.159	0.22 (0.827)
		inf	0.716	4.43 (0.000)*		nir	0.683	4.82 (0.000)*
	R ²	0.3928	χ^2 (Prob.)	19.58 (0.000)	R ²	0.3834	χ^2 (Prob.)	4.82 (0.000)
Indonesia	nir	c	4.745	4.08 (0.000)*	inf	c	2.296	1.67 (0.096)***
		inf	0.619	4.37 (0.000)*		nir	0.530	3.89 (0.000)*
	R ²	0.3461	χ^2 (Prob.)	19.08 (0.000)	R ²	0.3434	χ^2 (Prob.)	15.10 (0.000)
Hungary	nir	c	2.411	3.28 (0.001)*	inf	c	0.735	1.11 (0.269)
		inf	0.784	6.15 (0.000)*		nir	0.638	7.29 (0.000)*
	R ²	0.6488	χ^2 (Prob.)	37.77 (0.000)	R ²	0.6452	χ^2 (Prob.)	53.13 (0.000)

Significance * % 1 and *** % 10. χ^2 ; Chi-square statistic. R²; coefficient of determination. c; fixed term.

Firstly, when the results for Model 1 are evaluated, inflation coefficient is positive and % 1 level is found to be significant for all Fragile Six economies. In this case, one point increase in the inflation rate also increases the interest rate. This effect seems to be the highest in Brazil and Turkey, with changing from country to country.

One point increase in the inflation rate in Brazil increases the interest rate by about one point while it increases by about 0.95 points in Turkey. However, when we look at the coefficients of determination, inflation has a significant influence on the interest rate in Turkey. Looking at other countries, one point increase in interest rates, inflation has increased by 0,568 points in South Africa, 0,716 points in Chile, 0,619 points in Indonesia and 0,784 points in Hungary.

When the results for Model 2 are examined, it is seen that similar results are obtained for Model 1. Here, The interest rate coefficient is also positive and meaningful at 1% level for whole of the Fragile Six economies. That is, one point increase in interest rates also increases inflation. In Turkey, where the interest rate affects inflation at the highest rate among six countries, one point increase in interest rates affects inflation by approximately 0.96 percentage points. The coefficient of determination is also found to be 0.88. In short, 88% of inflation in Turkey is determined by the interest rate. Looking at other countries, the one-point increase in inflation rate increases the interest rate by 0,730 points in South Africa, 0,444 points in Brazil, 0,683 points in Chile, 0,530 points in Indonesia and 0,638 points in Hungary.

4. CONCLUSION

In the study of the validity of the Gibson Paradox for the Fragile Six economies between 2000 and 2016, the SUR estimation method developed by Zellner was used. The SUR method was chosen because it has certain advantages in using the units within a system, taking cross sectional dependency into consideration, and producing separate results for each unit.

In the report issued by Morgan Stanley in 2013, it was stated that Fragile economies were the countries that were more dependent on foreign capital due to high and rising current account deficits and whose currencies were depreciating. These countries are also facing serious political uncertainties from time to time. For these countries, economic stability is also an important factor for socio-political stability.

Price stability has an important place on the basis of economic stability. Today, monetary policies target price stability in the foreground and low inflation rates are considered to be an integral part of price stability. On the other hand, developing economies need foreign capital for various reasons in order to prioritize rapid growth and it is necessary to raise interest rates in order to attract foreign capital to countries. When the interest rate is raised, the national currency is valued and current account deficits are rising due to the increasing imports. Increasing current account deficits make countries more dependent on foreign capital and there is no alternative policy option to increase interest rates even further.

As it is seen in the study, in all Fragile Six economies there is a positive relationship between interest rates and inflation. In short, in all of these countries the Gibson Paradox is seen to be valid in the period of 2000-2016. The validity of the Gibson Paradox also shows that the countries wishing to attract foreign capital will face a serious inflation problem as they increase interest rates, as a result of that the current account deficit in fragile economies increases the dependence on foreign capital. Finally, the validity of the Gibson Paradox constitutes a link between current account deficits and economic instability for fragile economies. Identically, the increase in inflation rates also raises interest rates.

The most important priority for Fragile economies is to reduce dependence on foreign capital or to attract long-run foreign direct capital to the country and to direct such capital to the productive and export-oriented sectors. Increasing of dependence on speculative short-run capital causes an increase in interest-inflationary spiral and makes countries more vulnerable to economic and political risks.

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