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Increased globalisation in financial markets implies that the percentage of all shares under foreign ownership in domestic stock markets has been rising. The recent *speculative* attacks on the foreign exchange market in November 2000, followed by February 2001, led Turkey into a deep economic crisis. Real stock returns as an important indicator for a forthcoming or pending financial crisis, using net capital flows have already been established in Gazioglu (2003). In this paper we explore the effects of capital inflows and outflows to real exchange rates and the real stock market returns, before, and after the financial crisis.

We investigate the relationship between real exchange rate, real stock returns and capital flows. We decompose the foreign flows into real assets and liabilities, in order to investigate the possible long-term effect of inflows and outflows.

Empirical investigation shows that the long-term relationship only appears between the real exchange rates and the real bank liabilities owned by the foreigners. The first half of the sub-period, which is the pre-crisis period, is dominated by capital inflows and outflows. These affect the real exchange rate whereas the second sub-period, which is the post crisis period, is dominated by unstable the capital inflow and outflows causing the decline of real stock market returns and the depreciation of the currency. The post financial crisis period demonstrates a long-lasting effect on lowering the stock market returns. This confirms the theoretical findings of this paper.

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1. Introduction

A financial crisis in one part of the world is very likely to be felt by other financial markets via the domino effect. This transmission of foreign exogenous shocks to other economies, through financial markets, became a serious concern to emerging financial markets (EFMs). The electronic revolution assisted the high speed of capital flows, an important cause of economic volatility.

Kaminsky and Schumukler (1999), Collines and Gavron (2004) referred to common factors affecting all countries as 'contagion'. Turkey, as a newly emerging financial market, was influenced by international financial turbulence e.g. the negative influence created by the Russian crisis. However, the Asian crisis of 1997 had negligible 'contagion' effect on Turkey. None of these models relate short-term capital flows to stock market structure and price index during the crisis period.

These theories apply to some countries but not others. Turkey was advised by the IMF to introduce a 'Managed Float' from January 2000 until June 2001, despite having introduced currency convertibility in 1989. This was similar to other emerging markets, e.g. Mexico, Thailand and Korea. However, foreign exchange attacks in November 2000 and February 2001 prevented this plan. There has been empirical investigation into whether the crisis was caused by financial panic or by the weakness of economic fundamentals. Johnson et. al. (2000) created a vulnerability matrix using sets of criteria including macro indicators. Berg et. al. (2000) specifically looked at macroeconomic vulnerability. Their analyses were based on flow variables, with no consideration of stock variables such as wealth effects and foreign indebtedness. Calvo (1997) points out that the financial markets of the emerging market countries are administered by central banks, which are very sensitive to bankruptcies in the domestic financial institutions. This creates a moral hazard problem due to the expectation of bail out. The markets become vulnerable to speculative attacks due to rumour of devaluation. The moral hazard model partly explains the Asian and Turkish crises in February 2001. Calvo (1998) pointed out that the Chilean, Mexican and Venezuelan crises brought about

large burdens owing to large bailout packages. The structure of the banking sector played an important role in the Turkish Financial crisis (Metin-Ozcan (2004).

Both Kaminsky and Reinhart (1998), and Forbes and Rigoban (2000) examined the effects of crisis on the stock market. Changes in stock prices have been given special attention since the stock market of a country absorbs all available information related to national and global markets. Furthermore, changes in stock prices provide a frequent form of data to investigate the market.

None of these models relate short-term capital flows to stock market structure and stock price index during the crisis period. Calvo (1998) argued that the large negative swings in capital inflows -Sudden Stops- are harmful. This implies that large current account deficits are to be feared, irrespective of how they are financed, and particularly if they are financed by short-term debt.   The capital inflow slowdown or reversal of capital flows could push the country into insolvency or drastically lower the productivity of its existing capital stock. This might lead to large unexpected swings in relative prices and costly bankruptcy battles.

Our paper focuses on both short-term capital flows and the stock market as sources of international financial crisis. Both personal and corporate foreign investors are free to invest in the Istanbul Stock Market (ISM), as all kinds of financial controls have been abolished. In this analysis we also need to include the domestic banking and financial sectors in order to investigate the investment opportunities for short-term foreign capital. In addition to these considerations, we argue that the degree of volatility or magnitude of the financial crisis is closely related to the proportion of foreign investors in the domestic stock market. Furthermore, capital inflows and reversal outflows have asymmetric effects on real exchange rate and stock market prices.

Section 2 describes the financial structure of Turkey, including the Turkish Banking sector. In Section 3 we outline the model and its policy. Section 4 presents our empirical results. We conclude in Section 5 and offer suggestions for further research.

Development of the Turkish Banking Sector.

Kaminsky and Reinhart (1999) investigated the link between banking and balance of payment problems.   They found that there are causality between the currency crisis and Banking crisis[1] in both directions. Hahm (2004) suggested that interest and exchange rate exposure of the banking sector was measured with their sensitivity of stock market return. It has been found that the banking sector had high foreign exposure before the financial crisis.

Since 1980 there has been significant expansion and development in the Turkish banking sector.   Together with technological improvements and diversification of services; employment in the sector and the number of banks has been growing substantially.   In 1980 there were only 43 banks. The number of banks increased to 66 in 1990 and 79 in 2000. However, this number reduced to 74 in the middle of 2001, due to the merger of 5 banks under Sumerbank, which was taken over by a foreign bank, ISBN after the 2001 crisis. 18 of these were development and investment banks and 56 were saving banks. The number of foreign banks also increased from 4 in 1980 to 18 in 2000. During this period the share of total assets of the traditional state banks decreased from 45 percent in 1980 to 34 percent in 2000 (Metin-Ozcan (2005).   Figure 2 shows the number of banks during 1995-2005. In 2005 the number of banks reduced to 48. A substantial restructuring has taken place after 2000.

Figure 2: **Number of Banks**

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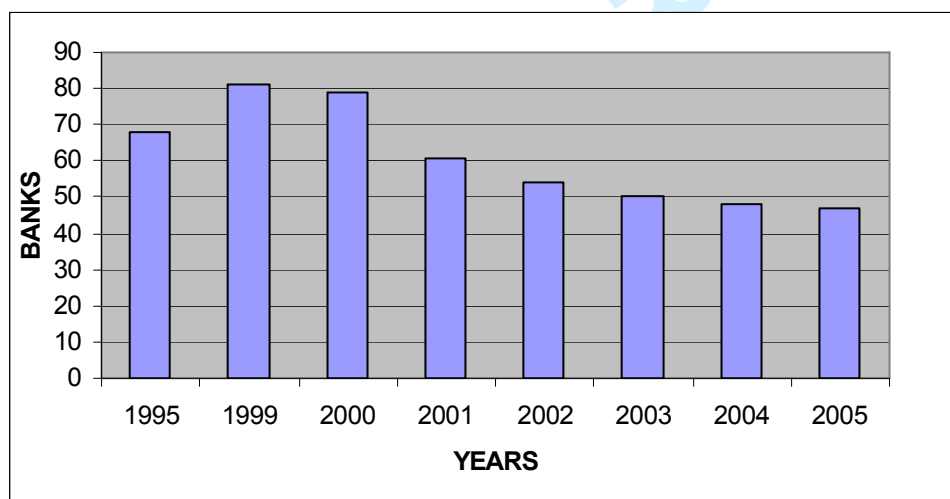
[1] Their empirical work is a cross country analysis and includes Turkish with January 1991 beginning of the Banking crisis and March 1991 Peak of the crisis and March 1994 closest balance of payment crisis.

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Figure 3 shows the number of branches of bank for the period 1995-2005. The number of branches increased from about 6000 in 1995 to 8000 in 2000. This number had fallen back to 6000 in 2005. It is clearly observed that there has been overexpansion of the banking sector, before the 2001 currency crisis. The South American experience was to be repeated in Turkey. The currency crisis was coupled with banking crisis to constitute the overall financial crisis.

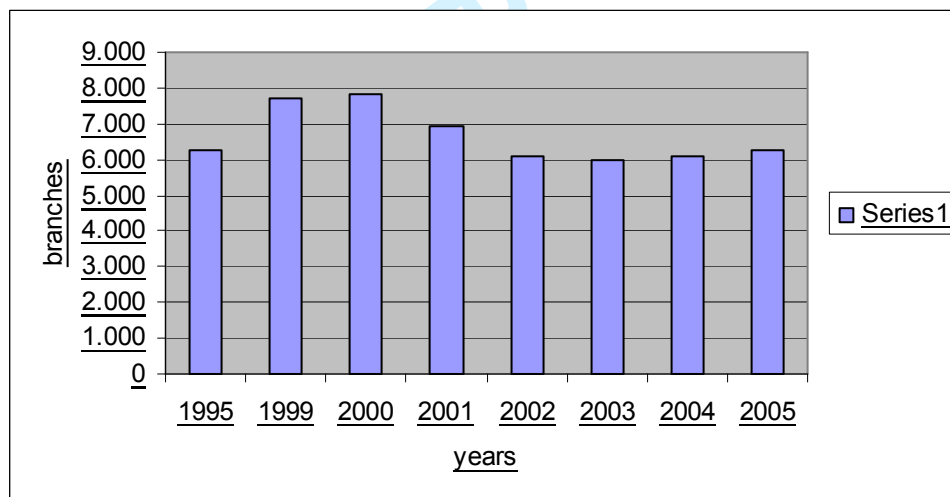**Figure3: Number of Bank Branches:1995-2005**

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Figure 4 suggests that as the number of branches (sube) has been steadily increasing, employment (personel) has been also increasing in the banking sector, since 2003. Hence, contraction of the banking sector started to be reversed after 2003.

Figure 4: Branches (Sube) and employment (Personel): 2002/4-2005/4
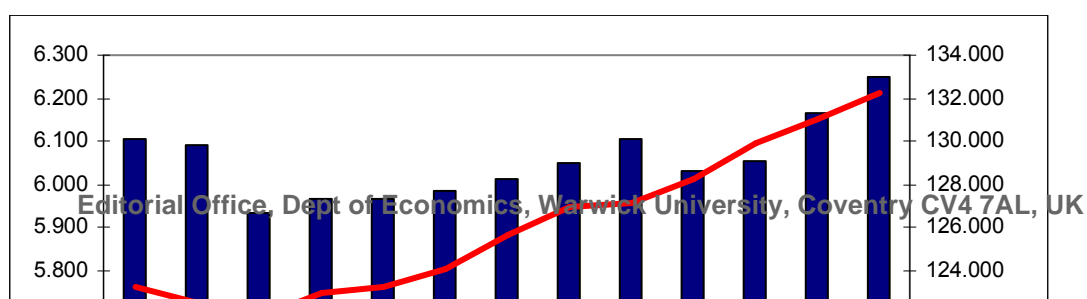
Table 1 in the appendix reports number of banks operating, branches and employment in the banking sector. It shows that there is a reduction of the total number of banks and branches between 2001-2003. The total number of branches has increased from 6244 to 6908 in 2001 and reduced to 6247 in 2005. The detail of these totals indicates that the number of branches of foreign banks had been increasing from 104 to 393, while the number of branches of state banks (and banks under Tassarruf Mevdut Sigorta Fonu (TMSF) from 1073 to 1) had been reducing from 2875 to 2035 between 1995-2005. The banking sector had been taken over by the foreign banks[2] after the exchange rate and banking crisis of February 2005.

3. Theoretical Model

The model is based on Gazioglu (2001, 2002, 2003), with incorporates a 'profit maximising firm' and a representative domestic consumer that maximises time separable utility functions Obstfeld and Rogoff (1995) and Ramsey (1928)). Following Obstfeld and Rogoff (1995), the stock market constraint is as follows:

$$V^d \dot{X}^d \equiv X^d \dot{V}^d + X^d D^d \tag{1}$$

Equation (1) states[3] that a change in the proportion (X^d) of the value of domestic firms[4] owned by domestic individuals (in other words, shares: the value of domestic claims to the

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[2] Sumerbank was also taken over by foreign

[3] See Obstfeld and Rogoff (1996, p.100) for a discrete time formulation.

[4] We assume that there are a large number of homogeneous perfectly competitive domestic firms producing goods for both domestic and foreign consumption. It should be noted that trade in this model takes place because of comparative advantage rather than country differences in intertemporal consumption/savings behaviour.

total future profits of domestic firms, V^d), $V^d \dot{X}^d$, is equal to the domestic proportion of the change in the stock market valuation of these shares, $X^d \dot{V}^d$, plus their proportion of dividends, $X^d V^d$.

Secondly, the balance of payments constraint:

$$\dot{H} = \Pi - T + H(1 + \frac{\dot{E}}{E})\left[1 + R^f\right]$$

(2)

The aggregate constraint of the stock market, net accumulation of foreign assets, and $-\dot{H}$, can only be accumulated by running a trade surplus, where Π is the foreign owned share of domestic dividends minus the domestic owned share of foreign dividends, and $H(1 + \frac{\dot{E}}{E})\left[1 + R^f\right]$ is any capital gain from holding foreign money in terms of foreign goods (a simple representation can be found in Gazioglu (1996), where external balance is also equal to internal balance.)

$$\begin{aligned}
\dot{X} - E\dot{H} \\
= Y - A - I + X^d\left(\dot{V}^d/V^d + D^d/V^d\right) + X^f\left(\dot{V}^f/V^f + D^f/V^f\right) \\
+ H\left(1 + \frac{\dot{E}}{E}\right)\left(1 + R^f\right)
\end{aligned}$$

(3)

Therefore the right hand side of the constraint represents net domestic 'income' (factor earnings, net interest from asset holdings, return on shares) minus 'consumption' (private and investment), reflected by the 'saving' (net wealth accumulation) on the left hand side. This combines the stock market constraint, following Obstfeld and Rogoff (1995) and Net International Debt following Gazioglu (2001, 2002, 2003). If the percentage of shares under foreign ownership in the domestic stock market increases, debt in the domestic economy increases, which is analogous to 'selling the family silver'. It would appear that the domestic economy is very sensitive to the level of foreign investment in the stock market. How severely a foreign shock affects the domestic market will be directly related to the percentage of shares under foreign ownership. The greater the share of foreign investors in the domestic stock market, the greater the vulnerability of the domestic economy is. The Asian crisis can be considered to fall into this category. Whether other emerging financial markets become

similarly vulnerable will depend on the percentage of shares under foreign ownership in the domestic market**.**

The dynamics of the whole system may be summarised[5] in matrix form by

$$
\begin{bmatrix} \dot{E} \\ \dot{H} \\ \dot{V} \end{bmatrix} = \begin{bmatrix} \dot{E}_E & \dot{E}_H & \dot{E}_V \\ \dot{H}_E & \dot{H}_H & \dot{H}_V \\ \dot{V}_E & \dot{V}_H & \dot{V}_V \end{bmatrix} \begin{bmatrix} E \\ H \\ V \end{bmatrix} + \begin{bmatrix} \dot{E}_k \\ \dot{H}_k \\ \dot{V}_k \end{bmatrix} [k]
\tag{5)}
$$

where the signs of the elements of the matrix are, from the discussion above: $\dot{E}_E > 0$, $\dot{E}_H < 0$, $\dot{E}_V > 0$ and $\dot{E}_E < 0$; $\dot{H}_E < 0$, $\dot{H}_H < 0$, $\dot{H}_V < 0$ and $\dot{H}_k > 0$; $\dot{V}_E < 0$, $\dot{V}_H > 0$, $\dot{V}_V < 0$ and $\dot{V}_k > 0$. Now the dynamic model is complete, empirical analysis may follow in the next section. The model has two stable equilibria and one unstable equilibrium. Gazioglu (2001, 2002, 2003) show that having a high percentage of shares under foreign ownership has an asymmetrical effect on exchange rate and on international indebtedness during inflows and outflows. The unstable equilibrium represents the "Ponzi game" position when a country has to borrow in order to make its debt repayments.

This model also highlights the asymmetric effect of capital inflow and outflow on exchange rate and international indebtedness. The phenomenon of hysteresis is due to the non-linearity of international debt dynamics. Initially international assets accumulate with capital inflow; later occurrences of capital outflow will push the equilibrium to unstable equilibrium in international debt and create a "Debt Trap"[6].

We use the dynamic variables of real exchange rate, real stock market return index and foreign capital flows in our empirical work. Ghosh (2000). Tan Hui Boon and Hook (2000) used only the real exchange rate and real stock market index to find out the direction of causality**.** Theoretically, ordering of the variables does not mater in the co-integration method we use. So, causality test is not necessary. in this work. Disaggregating the net foreign capital into inflows and outflows gives us the opportunity to assess the asymmetric effect of the flow

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[5] Although portfolio shares dynamically adjust to flow disequilibrium, they are, of course, constant in long term equilibrium, hence $\dot{X} = 0$. Furthermore, following Obstfeld and Rogoff (1996), to concentrate on the dynamics of domestic net international debt, real exchange rate and the stock market, we assume $\dot{V}^f = 0$.

[6] For detailed analysis see Gazioglu (2005).

direction. During the empirical investigation, the focus is on unstable Eigen values, which are greater than unity.

This paper argues that the percentage of shares under foreign ownership in any domestic stock market is a key indicator of vulnerability in the domestic stock market. The theoretical macro-model includes the dynamics of this important indicator. It is worth noting that liberal foreign exchange policies have applied since 1989, so foreign investors are free to buy and sell in the Istanbul Stock Market (ISM) as much as they wish.

Foreign portfolio investment in the Istanbul Stock Market (ISM or IMKB) increased from $33,654 million in 1996 to $83,069 million in 1999 and to $ 111,157 million in 2000. Since 1996 foreign investment levels have been growing very rapidly[7]. Furthermore, the percentage of shares owned by foreign investors is around 50 percent of the total market, which is quite high.

4. Estimation of the Structural Model:

We adopted a 'Structural VAR' model as it overcomes the identification problem of VAR estimation (Garratt A, K Lee, M.H. Pesaran, Y. Shin (1999)). The 'Structural VAR' is our econometric model. A full macro-model was introduced behind the econometric analysis. The macro dynamic model has long-term properties for the stability of the equilibrium.

Our theoretical framework suggests that several variables can identify structural macro variables. A theoretical model is important as it provides a mechanism for determining how the dynamic variables are expected to behave, both in the short and long term. Previous empirical work has only investigated the relationship between exchange rate and stock market prices and the importance of international debt has been ignored. The basis of our theoretical model is to test whether the dynamic model driven by the theory confirms the dynamic behaviour of the Turkish data. The following procedure has been applied for simplifying the estimation:

   a) We solve the 3 by 3 dynamic system and obtain the stability conditions. The detail of its proof can be found in Gazioglu (2005)

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[7] Teak (2003) suggested increasing daily traded volume of in stocks staring 01/03/1986 ending 06/12/98 (in US $) in Brazil.

Using unrestricted VAR estimation methods implies that ordering the variables do not matter in testing the co-integration. We imposed the following restrictions to the simultaneous estimations of the three variables: $\dot{H}_E = 0$, $\dot{H}_H = 0$, $\dot{H}_V = 0$ and $\dot{H}_k = 0$; $\dot{V}_E = 0$,

$\dot{V}_H = 0$, $\dot{V}_V = 0$ and $\dot{V}_k = 0$. The

Hence we estimate only $\dot{E}_H < 0$, $\dot{E}_V > 0$.

We compare the stability conditions of the theoretical model, which are signs of the coefficients, and the signs of the estimated coefficients of the empirical model. This helps to assess the stability of the system.

5. Empirical Results:

The data used in this work are from the Turkish central Bank for the period 1994:02 to 2003:10. Graph 1 plots the logarithm of real values of the variables, real exchange rate, (RLEXC), real stock returns (RLV1), real foreign assets (RLFASS), and real foreign liabilities (RLFLIAB). It is noticeable that the real stock market return started to fall after the introduction of an exchange rate based stabilization programme in December 1999, supported by the Breton Wood Institution in order to tackle inflation and public debt. Appendix 1 provides the details on the definitions and the sources of data. This indicted that the confidence of investors to the Currency Board had fallen. Fall of real stock returns seems to create some of the conditions for the forthcoming crisis in November 2000 and February 2001. We also observe that the gap between the foreign liabilities and assets disappears from the beginning of 2001, as a result of the financial crisis. Between the dates 1994:1-2001:02 the real exchange rate was near constant and the nominal exchange rate was managed pegged. After the crisis there is real currency depreciation during 2001, but after 2002 the real exchange rate reaches its pre-crisis level. This implies that the crisis was followed by the declining real stock market return and exchange rate depreciation and appreciation after 2002. Our hypothesis is that foreign short-term capital inflows (real foreign assets) are invested in the stock market, increasing the foreign stock market returns and appreciates or reduces the depreciation of the foreign currency (Model 1). A shock to capital outflow (real foreign asset liabilities) has an asymmetric effect of reducing the real stock market return (Model 2).

5.1 Structured VAR Approach

The estimated co-integrating equations may or may not confirm the signs of the expected stability conditions. Our aim is to do the co-integration test and compare the signs of the estimated coefficients and the signs of the stability conditions of the theoretical model.

The existence of unstable equilibrium in the theoretical model corresponds to the sub-period of series. Furthermore, the normalised co-integrating coefficients are greater than unity[8], hence the possibility of instability in the theoretical model.

5.2 Stationarity and Co-integration Tests:

In this section the stationarity of all variables is tested. The data was divided into sub-periods , using Romers' Narrative 'VAR Approach'. The whole period is 1994:02 to 2002:09, and the sub-periods are 1994:02 to 2000:11 and 2000:12 to 2003:10. We also put dummy to 2000M11 and 2001M2 to test structural brake for estimates of the entire period.

Table 1 reports the summary of the Augmented Dicky Fuller (ADF) test of the real stock market returns (RLV1), Real Foreign Assets (RLFASS) and Real Foreign Liabilities (RLFLIAB). For the period 1994:2-2003:10 the real exchange rate, the capital inflows and outflows are I (0) and stock market return is I (1) as reported in Table 2.

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[8] implying outside of the unit circle.

Table 2: Testing for Unit Roots (ADF test): Logarithm of real exchange rates (RLEXC), real stock return (RLV1), real foreign liabilities (RLFLIAB), real foreign assets (RLFASS), : 1994:M01-2003:10 (Akaike information criteria (AEC),

	Variables	with intercept	With intercept and trend
Level	RLEXC	$-3.349(3)^{8}$**	- 3.143(3)(**)
First difference	DRLEXC	-7.882(4)***	-7.868(1)(***)
Level	RLV1	-1.916(1)	-1.439(1)
First difference	DRLV1	-8.633(0)***	-8.707(0)*** 1
Level	RLFLIAB	-4.774(0)(***)	-10.496(0)
First difference	DRLFLIAB	- 5.400(4)(***)	-5.525(4)(***)
Level	RLFASS	-3.326(2)(**)	-8.868(0)(***)
First difference	DRLFASS	-7.967(3)(***)	-7.949(3)(***)

Notes to Table 1: Critical values (with intercept) for 1%(***), 5%(**), 10%(*) are 3.496, -2.890 and −2.582 respectively. Critical values (with intercept and trend) for 1% (***), 5%(**), 10%(*) are –4.051,-3.455, and –3.153 respectively.

Level variables are used in the co-integration estimations[9].   However, with a structural dummy both model 1 (LREXC, LRV1, LRFASS) and model 2 (REXC, LRV1, LRFLIAB) co-integrates as discussed in the next section.

5.2.1 Co-integrating analysis:

In this section we investigate the co-integrating analysis as a long-run relationship(s) between real exchange rate (LREXC), real stock return(LRV1), capital inflows (real foreign assets (LRFASS) and capital outflows (LRLIAB) over the period 1994m01-2003m10. We used the Johansen multivariate technique in our co-integration analyses (Johanson (1988) and; Pesaran and Smith (1998) and others). We first performed a co-integration analysis with constant term entering un-restrictively but with a trend term restricted to lie in the co-integration space. We found that the trend term is insignificant in the co-integration relations. We also included

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[9] The first difference variables had not co-integrated.

a Dummy[10] (D0201) for the crisis date, February 2001 to account for structural break. This entered restrictively to co-integrating space.

The Eigen value tests of model 1 suggests that the real exchange rate, real stock values, real foreign assets (capital inflows) are co-integrating as reported in Table 5 with the lag length of VAR=1[11]. A one percent increase of LRFASS reduces the LREXC by 1.26 percent, implying appreciation of the currency, or depreciating less than it would have otherwise. Model 2, which includes real exchange rate, real stock values and real foreign liabilities (capital outflow). also co-integrates as reported in Table 6. A one percent increase of foreign outflows (LRLIAB) increases the foreign exchange by 11.047 percent, implying depreciation of the domestic currency. During the outflow, the real stock markets return (LRV1) is worth more (2.5%) than during inflow (DLRFASS) case. This suggests that capital inflows increase the stock market returns as it enters into the country (with the expected increase), (0.17) and it moves out when the return is high (2.50) and is expected to fall, due to disliked government policies. The asymmetric effects of capital inflows and outflows confirm the theoretical discussion on hysteresis Gazioglu (2001,2002,2003). Though the coefficients of LRV1 in both model 1,2 are smaller than unity, the coefficients of LRFASS and LRFLİAB are greater than unity. This indicates a greater influence of capital inflows on real exchange rates than the stock market returns. The estimated coefficients also have the theoretically expected signs. Therefore, our empirical estimates confirm our theoretical model.

5.2.3 Impulse responds analysis:

It has been pointed out that impulse respond analysis is important in co-integrating systems (Pesaran and Pesaran (1997), Lutkpohl and Reimers (1992)). In figures 1and 2 we give the time plots of logarithms of real exchange rate, real stock market returns and capital inflows (model 1) and capital outflows (model 2) respectively. Here, we provide the general impulse

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[10] For each model 1 and 2 we found non-normal residuals. The residual of each equation in which 2001M2 is an outlying observation. Therefore, we included impulse dummy for D0201(Hendry and Juselius (2001)). After we included D0201 in VAR(1) un-restrictively, equations perform normal distribution and showed no autocorrelation and heteroscrdicity (Pesaran and Pesaran (1997)

[11] The lag lenth of VAR for each system is determined by Schwarz Bayesian Criterion.

response (IR) functions[12] to examine the dynamic effects; that is medium and short-run effect of a shock on a given variable on all the other variables in the system.

We assess the dynamic effect of a rise in capital inflows and outflows instabilities on variables in the system by examining the generalized IRs to a positive unit (one standard error (SE) in capital in and outflows respectively; in model 1 and 2. In figure 2, as expected, short and medium run responses are negative on LRV1. A positive LREXCH shock (depreciation) leads to reduction of the value, LRV1 (Figure 2, a). One SE shock in the equation to LRV1, will increase the capital inflows, LRFASS (Figure 2.b). A generalised impulse response to one shock for LRFASS (an increase of capital flows) increases the value of LRV1 as inflows are invested in the stock market (Figure 2.c). Figure 3 has the impulse responses of the Model 2. Figure 3a and 3c shows their similarities. One SE shock in the equation LREXC increases (LRV1) and decreases (-LRFLIAB). Appreciations increase the capital outflow (figure 3a). One SE shock in the equation LRFLIAB (outflow) will decrease (as – LRFLIAB) the value of LRV1[13]. Outflows (-LRFLIAB) reduce the (LRV1) from (-0.03 to -0.10) in Figure 3c.

6. Conclusions and Policy Implication:

The paper investigates the contribution of capital inflows and outflows to financial crises. A theoretical model based on the behaviour of representative utility maximising agents in various intertemporal stock-flow constraints is introduced. The model suggests that an exogenous shock increases capital inflows, leading to real exchange rate appreciation (a fall) and a fall in stock market prices in the long term.

Our empirical results confirm the asymmetric impact of capital inflows (foreign liabilities) and capital outflows (foreign assets). Real assets have a greater impact than real liabilities on the real exchange rates. The asymmetric impact of inflows and outflows of capital on international indebtedness creates the "Debt Trap".

Policy implication of asymmetry effect of capital flow is a controversial issue. Malaysia was the only country that refused to borrow from the IMF and introduced capital control on the

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[12] We used generalized IR function, because it does not depend on the ordering of the variables within the system. This is in contrast with the orthogonalized IR function which has solution depending on the order of the variables.
[13] Note that I multiplied the negative values of liabilities with (-) to be able to take their logarithms.

short-term foreign capital by restricting their re-entry if was taken out in short period in the previous period.   Whether this can be applied in Turkey is the political will of the government.

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Appendix 1

Source: Turkiye Cumuriyeti Merkez Bankasi, publications

V1: TP.MK.G.Mali: (Return indices) ISE National- Financial TL (27-12-1996=914 TL)

CPI(100 = 1994) name: TK CPI NADJ, Code: TKCon PRC F

EXC: Exchange rate, monthly averages

Foreign Liabilities: TP. PBD.CO5: A12, Foreign liabilities of the Banking Sector,

              Note for Banking sector: Beginning July 2002 inflation

              Adjusted (negatives)

Foreign Assets: TP.PBDC Foreign asset

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Table 1

Banks Operating in Turkey	1995	1999	2000	2001	2002	2003	2004	2005
A. Commercial banks	**55**	**62**	**61**	**46**	**40**	**36**	**35**	**34**
1. State banks	5	4	4	3	3	3	3	3
2. Private banks	32	31	28	22	20	18	18	17
3. Banks under TMSF		8	11	6	2	2	1	1
4. Foreign Banks	18	19	18	15	15	13	13	13
B. Investment & Development Banks	**13**	**19**	**18**	**15**	**14**	**14**	**13**	**13**
1. State banks	3	3	3	3				
2. Private banks	7	13	12	9				
3. Foreign banks	3	3	3	3				
TOTAL	**68**	**81**	**79**	**61**	**54**	**50**	**48**	**47**

Number of Branches in Banking Sector	1995	1999	2000	2001	2002	2003	2004	2005
A. Commercial banks	**6,219**	**7,660**	**7,807**	**6,889**	**6,087**	**5,949**	**6,088**	**6,228**
1. State banks	2,875	2,865	2,834	2,725	2,019	1,971	2,149	2,035
2. Private banks	3,240	3,960	3,783	3,529	3,659	3,594	3,729	3,799
3. Banks under TMSF		714	1,073	408	203	175	1	1
4. Foreign Banks	104	121	117	233	206	209	209	393
B. Investment & Development Banks	**25**	**31**	**30**	**19**	**19**	**17**	**18**	**19**
1. State banks	9	12	11	4	4			
2. Private banks	12	16	16	12	12			
3. Foreign banks	4	3	3	3	3			
TOTAL	**6,244**	**7,691**	**7,837**	**6,908**	**6,106**	**5,966**	**6,106**	**6,247**

EMPLOYMENT IN BANKING SECTOR	1995	1999	2000	2001	2002	2003	2004	2005
A. Commercial banks	**138,694**	**168,558**	**164,845**	**132,274**	**118,329**	**118,607**	**122,630**	**127,857**
1. State banks	72,699	72,007	70,191	56,108	40,158	37,994	39,467	38,046
2. Private banks	63,010	92,366	70,954	64,380	66,869	70,614	76,880	78,806
3. Banks under TMSF			19,895	6391	5886	4,518	403	395
4. Foreign Banks	2,985	4,185	3,805	5,395	5,416	5,481	5,880	10,610
B. Investment & Development Banks	**6,099**	**5,430**	**5,556**	**5,221**	**4,942**	**4,642**	**4,533**	**4,401**
1. State banks	5,245	4,336	4,456	4,322	4,174			
2. Private banks	716	1,027	1,021	822	691			
3. Foreign banks	138	67	79	77	77			
TOTAL	**144,793**	**173,988**	**170,401**	**137,495**	**123,271**	**123,249**	**127,163**	**132,258**

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Figure: 1

Real Foreign Liability

Real Foreign Assets

real exchange rate

Real stock returns
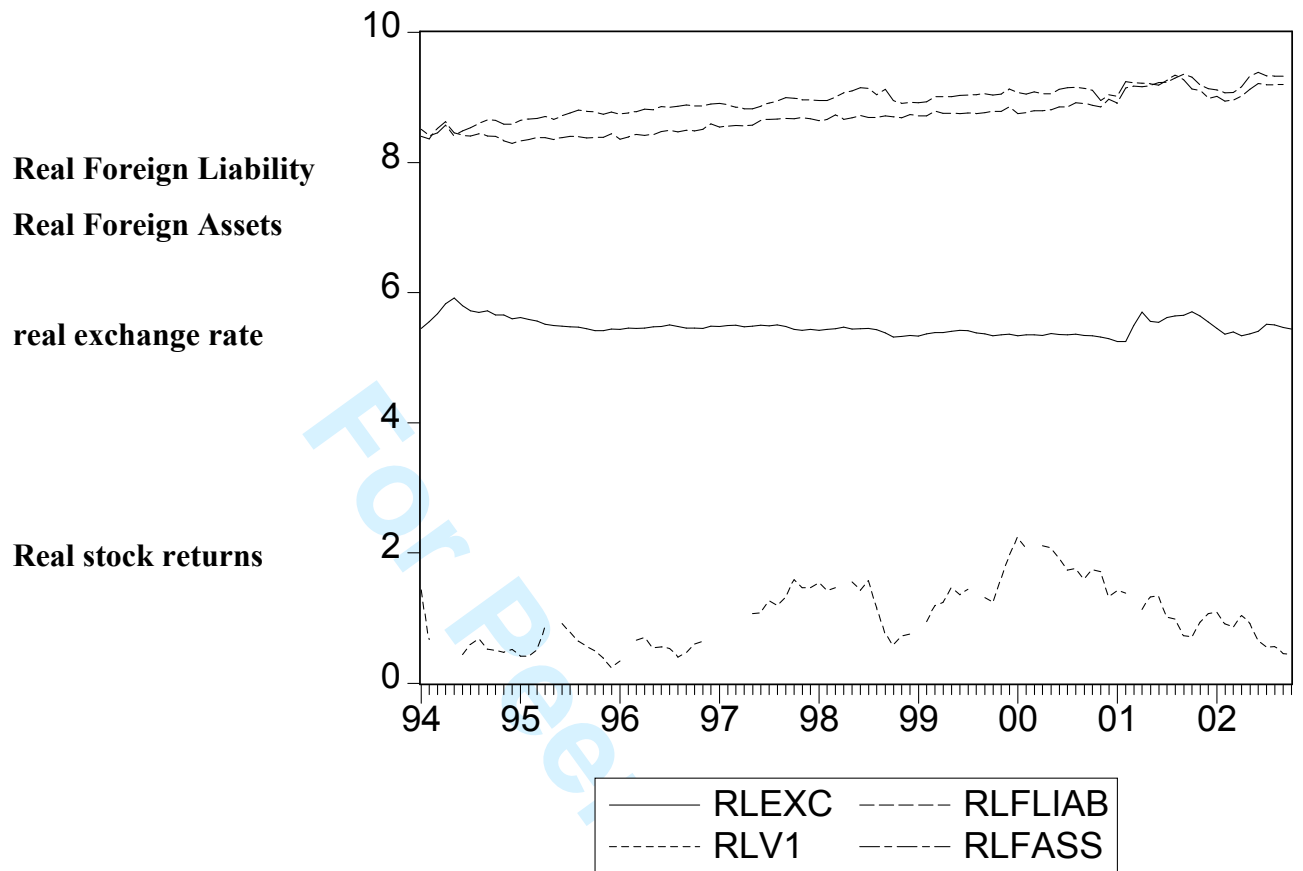
Table 5

Co-integrating Results of Model 1: Influence of foreign Asset Inflows (LRFASS)

Test of co-integrating rank			
	LREXC	**LRV1**	**LRFASS**
Eigenvalues	0.385	0.065	0.029
Null hypotheses	r=0	r<=1	r<=2
Max statistic	50.48	6.99	3.09
95% critical value	21.12	14.88	12.98
Trace statistic	60.57	10.08	3.09
95% critical value	31.54	17.86	8.07
Co-integration results (r=1)			
(Beta)[14]	1	0.17	- 1.260
		(0.128)	(0.592)[15]

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[14] Standardized Eigen vector

| (Alfa)[16] | - 0.264 | 0.046 | - 0.331 |

Table 6

Co-integrating Results of Model 1: Influence of foreign Asset Inflows (LRFLIAB)

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Test of co-integrating rank

	LREXC	LRV1	(- LRFLIAB)
Eigenvalues	0.337	0.066	0.337
Null hypotheses	r=0	r<=1	r<=2
Max statistic	42.39	7.14	3.53
95% critical value	21.12	14.88	8.07
Trace statistic	53.05	10.08	3.53
95% critical value	31.54	17.86	8.07

Co-integration results (r=1)

(Beta)[17]	1	2.50	- 11.047
		(0.128)	(0.592)[18]
(Alfa)[19]	0.0198	-0.49	0.219

_____

[15] Asymptotic standard errors are in parentheses

[16] Adjustment coefficient

[17] Standardized Eigen vector

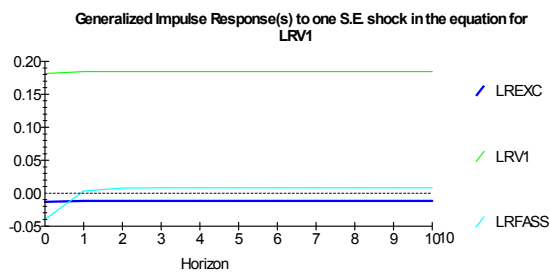[18] Asymptotic standard errors are in parentheses

[19] Adjustment coefficient

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Figure2 (Model 1)
a)

b)

c)

Figure 3 (Model 2)
a)

Generalized Impulse Response(s) to one S.E. shock in the equation for
LREXC

b)

Generalized Impulse Response(s) to one S.E. shock in the equation for
LRV1

c)

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Generalized Impulse Response(s) to one S.E. shock in the equation for LRFLIAB