Volatility of short term capital flows and socio-political instability in developing countries: A review

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VOLATILITY OF SHORT-TERM CAPITAL FLOWS AND SOCIO-POLITICAL

INSTABILITY IN DEVELOPING COUNTRIES: A REVIEW

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ABSTRACT

The paper reviews the theoretical and empirical evidence on the relationship between financial liberalization and socio-political risk by identifying the inter-dependent nature of socio-political and economic fault lines. In particular, the research examines the dynamic relationship between the volatility of short-term capital flows and socio-political instability. Accordingly, the socio-political risk is argued to be endogenously determined with the volatility of short term capital inflows such that increasing volatility by disrupting market activities, domestic investment and growth increases socio-political risk, which further feeds into the volatility of such flows. Using evidence from three major developing countries that are Argentina, Mexico and Turkey and applying Granger causality tests and Impulse Response Functions, the paper finds support for the presence of an endogenous relationship between the volatility of short-term capital inflows and socio-political instability. The results challenge the previous research regarding the use of political risk as a purely exogenous variable.

Keywords: Short Term Capital Flow Volatility, Socio-Political Instability, Developing Countries

JEL Classification: F21, F32, O16, O40, C32

1. INTRODUCTION

> There is nothing so disastrous as a rational investment policy in an irrational world. (J. M. Keynes)

> … if capital markets can, in fact, bring about a collapse and its attendant costs for no external reason, then they are clearly counter productive and deserve restraint. If by contrast, they bring down currencies and policy packages that are unsustainable, then they deserve *three cheers* (Dornbush et al., 1995, p.255, emphasis is mine).

> The authorities in Argentina say half of the country's 36 million people are now living in poverty because of the deterioration of the economy in the worst crisis of the country's history (BBC, 2002)

The revival of international capital flows in early 1990s combined with domestic far-reaching economic (and in some, political) reform programs along the neoliberal economic model generated a strong shift of mood in both developed and developing country markets regarding the long term outlook of the world economy. In this respect, the recovery of capital flows and accompanying reforms were expected to release foreign exchange and credit bottlenecks, decrease domestic and international real interest rate differentials, generate financial sector deepening and capital market development, minimize moral hazard problems and rent seeking behavior in the public and private spheres, and finally support long-term growth prospects of developing economies. After more than a decade of liberalization experience, however, some serious questions remain over the capacity of capital flows in achieving the initial policy projections. In addition to unmet expectations, there is a growing controversy over the direct role of such flows in generating or at least setting the stage for the consecutive financial crises in both developed and developing countries during the course of 1990s and early 2000s.

Nevertheless, despite a growing research on the causes and effects of international capital flows very little is written on their volatility. This general neglect is especially surprising given the sky-rocketing daily foreign exchange (FX) trading with an ever-increasing gap between real and financial sector activities. Accordingly, the annual FX trading to world trade ratio reached 10/1 in 1980 and 90/1 in 2004 from a mere 2/1 in 1973. Meanwhile FX trading/World GDP reached 17/1 as of 2004 (BIS, 2004). During this time, total sale and purchase of US treasury bonds *and* US corporate Bonds and Stocks between US residents and foreigners increased from around $97 billion and $84 billion in 1980 to $20 trillion and $11 trillion in 2005 respectively.

Despite this substantial expansion in capital flows, apart from a few studies, there is no comprehensive analysis of their volatility or its interdependent relationship with the domestic macroeconomic variables. In this respect, one of the issues that have been neglected in the current literature is the effects of capital flow volatility on socio-political instability in developing countries (political risk and socio-political instability will be used interchangeably from here on). This lack of research on developing country experiences is especially surprising given that macroeconomic volatility is expected to have a much stronger negative welfare effect in developing countries than in developed ones (Pallage & Robe, 2003). Given the interdependent nature of capital flows, country risk, private investment, and growth in developing countries, the main question asked here is whether the effects of capital flows are limited only to the economic arena or spillover to the non-economic as well.

The current article suggests that uncontrolled domestic and external financial liberalization has given rise to an endogenously determined cycle among socio-political risk, international capital flows, and growth in developing countries. Accordingly, the volatility of short term capital flows and political risk are argued to be endogenously determined such that increasing volatility by disrupting market activities, domestic investment and growth increases political risk, which further feeds into volatility of such flows.

In order to explore the presence of such an endogenous relationship, the paper uses evidence from three emerging markets, Argentina, Mexico, and Turkey (AMT from here onwards), which appear as a trio where financial liberalization programs were first started (together with Chile[1]) and the experiences of which have formed the theoretical (and *ideological*) basis of the arguments (either for or against) on globalization and liberalization of markets in the developing world. The following figures also help emphasize the relative importance of these three countries among other emerging markets: Argentina and Mexico attracted 42% of total foreign direct investment (FDI) inflows, 56% of total IMF credit and 43% of total portfolio flows to Latin America between 1980-2000. Furthermore, between 1990-1994 and 1990-2000 AMT received 53% and 38% of total portfolio flows to middle and lower income countries in the world. In fact, Turkey itself received 23 cents out of every dollar invested in middle income countries in the form of portfolio investment in 2000. Moreover, Turkey is not only the largest debtor of IMF accounting for 46% of the total outstanding credits and loans from the General Resources Account, but also has the highest quota/usage ratio from this account with 1011% of its quota as of April, 2006.[2]

The empirical results using Granger causality tests and Impulse Response Functions suggest the presence of a causal relationship between short-term capital flow volatility and socio-political risk. The findings are of significant importance given the general neglect of this two-way relationship between macroeconomic volatility and socio-political risk.

The next section presents an overview of the existing research on the relationship between economic variables and socio political risk. The third section provides a critical review of the previous research and identifies the endogenous relationship between the volatility of short-term capital flows and socio-political instability together with the presentation of key hypothesis of interest, the data and measurement issues. The fourth section presents the empirical results. The final section provides a discussion of the findings and concludes the paper.

2. ECONOMICS OF SOCIO-POLITICAL RISK

2.1. Political Risk, International Capital Flows, Investment and Growth

The relationship between domestic and international investment decisions and socio-political instability has been an attractive topic for researchers especially following the globalization of domestic markets for the last two decades. In particular, the existing research focused on the effects of political instability on: i) global asset allocation (for both debt and equity flows), and ii) domestic financial markets and macroeconomic fundamentals, and on growth.

The research in international finance mostly focused on the effects of political instability on the global asset allocation decisions of private investors. These models spread over a wide range of fields from measurement of risk premiums in equity returns to measuring country creditworthiness (e.g. Feder & Uy, 1985; Rivoli & Brewer, 1997; Bailey & Chung, 1995; Erb et al., 1995; Rivoli & Brewer, 1997; Bilson et al., 2002). In this group, it is argued that political risk factors are at least as important as economic variables in explaining foreign lenders' risk perceptions and countries' creditworthiness. In this respect, the countries experiencing higher levels of capital inflows are argued to have lower levels of political risk than others (Hernandez & Rudolf, 1994, Fedderke & Liu, 2002). Likewise, political risk and instability are pointed out to have a significantly negative impact on FDI flows to developing countries (Kobrin, 1978; Root & Ahmed, 1979; Nigh, 1985; Schneider & Frey, 1985; Wei, 1997; Biswas, 2002).

Moreover, the existing research suggests an economically and statistically significant negative relationship between political risk and stock market returns in developing countries while no such effect is found in the case of developed country markets (Erb et al., 1995; Diamonte et al., 1996; Bilson et al., 2002). In the case of capital flow volatility, while Alfaro et al. (2004) failed to detect any significant effect of institutional quality on the volatility of total net capital inflows in a cross-section of 97 countries

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between 1970 and 2000[3], Beck (2001) finds that rule of law has a statistically significant negative effect on volatility in the case of 56 emerging markets over the period of 1990-1998.

Likewise, in the growth literature political instability has been widely used as an explanatory variable.[4] The majority of research in this field finds a negative relationship between political risk, and investment and growth (Barro, 1991; Alesina & Perotti, 1994, 1996; Alesina et al., 1996; Sala-i-Martin, 1997; Asterio & Price, 2001). Furthermore, Venieris & Gupta (1986) identify an inverse relationship between political instability and savings rate. In addition, Asteriou & Price (2001) find that socio-political instability not only negatively affects the growth rate but also increases its volatility in the UK.

Another related issue with political instability and growth connection is the income inequality and growth relationship. There are two opposite views on this issue. One is the classical view, which suggests that more inequality favors more accumulation, because the rich save more than the poor. The second view analyzes the effect of inequality on growth and investment through fiscal redistribution channels: Increasing social pressures because of growing income inequality diverts resources from investment to fiscal redistribution and hence generates an inverse relation between inequality and investment in physical capital (e.g. Persson & Tabellini, 1994; Alesina & Rodrik, 1994; Alesina & Perotti, 1996). These two effects go in opposite directions and in principle they may cancel out. Perotti (1996) and Barro (1999) provide support for this thesis in their analysis of inequality-growth relationship where they find no significant effect of inequality on growth.

The central idea behind the above research is that socio-political unrest and instability disrupts market activities and investment decisions by increasing economic uncertainty and risk. Increasing violence, civil wars, political disorder and physical threats to workers and entrepreneurs can have direct effects on productivity and therefore on the rate of return on investment.[5] As a result, as Olson (1982, p.165), argued "instability diverts resources that would otherwise have gone into productive long term investments into forms of wealth that are more easily protected, or even into capital flight to more stable environments". Therefore, increasing social discontent and political uncertainty is expected to harm growth and investment while at the same time discouraging foreign capital inflows and encouraging outflows.[6]

2.2. International Capital Flows, Macroeconomic Volatility and Growth

Political sources of risk are not the only causes of uncertainty and instability for investors. In this respect, the effects of liberalization of financial markets on domestic macro variables (that directly or indirectly may affect socio-political risk) have also been among the most hotly debated topics in the recent economics literature.

Grabel (1995) and Oks & Wijnbergen (1995), for example, established a direct link between stock market fluctuations, and short-term capital flows and/or financial liberalization in several emerging markets. Likewise, Calvo et al. (1993) examined empirical evidence for 10 Latin American countries and concluded that foreign factors accounted for 30-60% of the variance in real exchange rates and reserves. Similarly, Berg & Taylor (2000) and Frenkel & Ros (2006) found a direct link between capital flows and the appreciation of domestic currencies in Latin American countries that led to a shift of relative prices against tradable good sectors. Consumption volatility, on the other hand, has also increased in emerging markets following financial liberalization during the 1990s (Kose et al., 2003). Furthermore, it is also shown that the coefficient of variation of growth among developing countries is on average more than 6 times higher than among developed countries (Mobarak, 2005). The existing empirical evidence also shows an increase in the volatility of sales and earnings of firms in both developed and developing country markets for the last three decades (Grabel, 1995; Comin & Mulani, 2006; Wei & Zhang, 2006).

In the case of changes in the volatility of capital flows, Gabriele et al. (2000), find that between late 70s and 90s "capital flows to developing countries are characterized by high, rising and unpredictable volatility" (p.1051). Furthermore, as Weller (2001) points out emerging economies are systematically becoming more vulnerable to both currency and banking crisis after financial liberalization. Between 1980 and 1995 almost ¾ of 181 members of IMF had one or more periods of banking crisis or significant

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banking problems (Felix, 1998, p.164). UNCTAD (1998) also argue that many of the weaknesses in economic fundamentals such as currency appreciation, deterioration of the current account and increasing exchange rate risk is related with the capital flows.   Excess volatility in exchange rates resulting from increasing capital flow volatility also raises inflation uncertainty, and encourage speculative financial investments by financial and real sector firms alike (Felix, 1998; UNCTAD, 2006; Demir, 2007a, 2007b). In this respect, from a Keynesian perspective, increasing volatility following financial liberalization may be self-reinforcing as investors shorten their planning horizons, which further feeds into the existing volatility (Keynes, 1964, Ch. 12; Grabel, 1995).

As a result of this increasing financial fragility and speculative crises during the 1990s such as the ERM crisis in 1992, Peso crisis in 1994-5, and Asian crisis in 1997, a new line of instability and crisis literature appeared that replaced the earlier *first generation currency crisis* models à la Krugman (1979) where an incompetent public sector with its irresponsible internal and external balance targets was seen as the root cause of financial instability and crisis. In retrospect, the first generation currency crisis models have often been used to provide theoretical support to such views that financial markets punish those countries with unsustainable and inconsistent domestic economic policies. In this narrative, a speculative attack, which deserves "three cheers", becomes inevitable once the investors realize the unsustainable nature of the economic policies implemented in the host countries (Dornbush, et al., 1995).

According to the new *second generation currency crises models*, on the other hand, as business portfolios become more and more diversified in the highly integrated international capital markets, the marginal benefit of acquiring expensive country specific in-depth information decreases which in return discourages investors from obtaining detailed information on each country they invest in. (Calvo, 1998; Calvo & Mendoza**,** 2000). Therefore, it is quite *rational* for investors to react even to small news, which means "small bad news" even if there is no change in fundamentals can generate a speculative attack and a reversal of international capital flows. As a result, foreign investors may not be as responsive to real sector changes in the short-run as they are to news, market rumours, and political risk variables and therefore good fundamentals may not be sufficient to avert a financial crisis (Eichengreen et al., 1995; Fitzgerald, 2001). According to this wave of models, over-optimism, which is followed by over-pessimism, is mostly explained by changes in investor expectations. The presence of asymmetric information and herd behavior, hence, play a key role in these models. The second-generation crisis models, as a result, by arguing for the possibility of multiple equilibria depending on investor expectations, introduced low growth traps and financial anarchy into policy discussions (Eichengreen et al., 1995; Obstfeld, 1986, 1994)

On the other hand, when looking at the effects of uncertainty and volatility (including volatility in real GDP growth, real exchange rate, relative prices of capital goods, and inflation) on investment and growth, the existing empirical evidence suggest an unambiguously direct negative link in both developed and developing countries (Driver and Moreton, 1991; Federer, 1993; Hausmann & Gavin, 1995; Ramey & Ramey, 1995; Price, 1995; Aizenman & Marion, 1996; Serven, 1998; Demir, 2008a). Also, Galeotti & Schiantarelli (1994) based on a panel of non-financial US firms found that firms' investment decisions are affected as much by optimist/pessimist moods of market participants as by fundamentals, which reflect the importance of *conventions* and *expectations*. Accordingly, the signals sent by the stock market are important even when fluctuations are caused by irrational investor behavior. Moreover, Moguillansky (2002) for 16 LA countries, and Demir (2008b) for Argentina, Mexico and Turkey, find that volatility of short-term capital flows has a statistically and economically significant negative effect on fixed investment.[7]

3. CAPITAL FLOWS AND SOCIO-POLITICAL RISK: THE ENDOGENEITY PROBLEM

What is common in a majority of research in the field is that they identify a linear relationship from political risk to international and domestic investment decisions, and to economic growth. As a result, most of the empirical evidence has been obtained without tackling the parameter endogeneity problem despite the fact that the joint endogeneity of some regressors and the regressed variable causes a

misspecification problem in econometric analysis. Shortly, this implies that political risk variables are correlated with the residuals and thereby make the standard OLS estimators biased and inconsistent.[8]
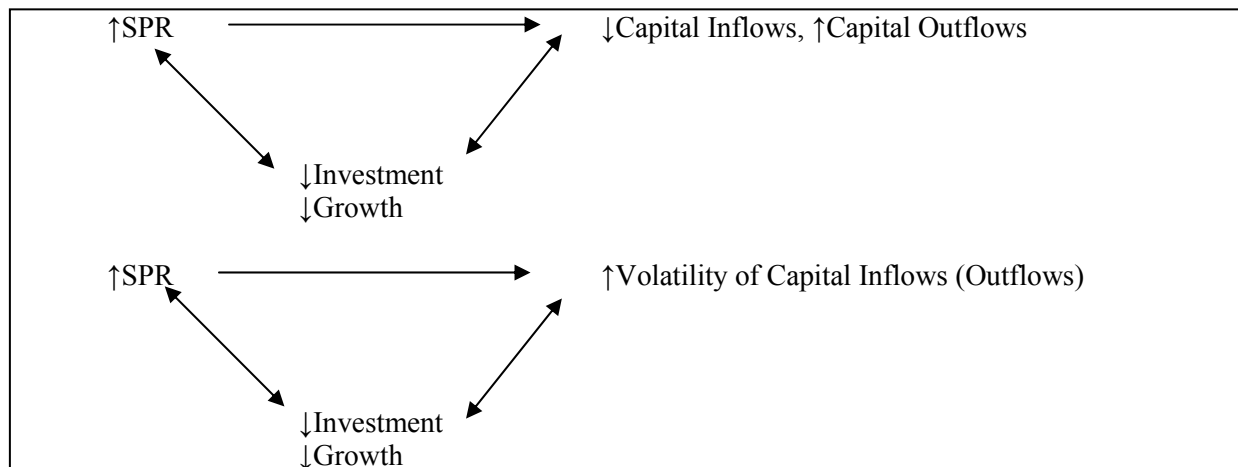
Having observed a direct relationship from political risk to private investment, capital flows, and growth, some interesting results emerge when looking at the effects of changes in economic variables on socio-political instability. In this respect, the relationship between economic growth and poverty has long been an engaging topic in the field. In a recent paper, Adams (2004) find that economic growth elasticity of poverty is –2.79 and statistically significant when growth is measured by changes in mean survey income. Similarly, Hausmann & Gavin (1996) in a sample of 56 countries reported that GDP growth volatility has a significantly negative effect on income inequality.

In the case of the effects of income inequality on crime, Fleisher (1966), Ehrlich (1973), Soares (1999) and Fajnzylber et al. (2000) find that income inequality significantly increases crime rates. At this point, as reviewed by Freeman (1994), most of the research in the field also finds a positive relationship between unemployment and crime rates. Besides, Fajnzylber et al. (2000) based on a cross-country analysis established a statistically and economically significant negative relationship between GDP growth and violent crime rates. In this respect, Harms (2002) provides an analytical model that explains the negative correlation between poverty and political risk.

Regarding financial liberalization, and inequality and poverty relationship, the findings of Taylor & Vos (2000) who distinguish the effects of trade and financial liberalization on income distribution further indicate the presence of an endogenous relationship between social and macro-economic variables by linking financial opening with greater volatility that impedes sustained improvements in equity and poverty reduction. Likewise, Dutt & Mukhopadhyay (2005) find that globalization (reflected by world trade and international capital flows) causes an increase in the inequality of per capita GDP across nations. Similarly, in an analysis of the effects of economic reform programs of the 1980s and 90s on income inequality in 17 Latin American countries (representing more than 90% of the region's population), Birdsall & Szekely (2003) show that financial liberalization significantly increased income inequality. Consistent with Hausman and Gavin (1996) they also find a significantly positive impact of macroeconomic volatility on inequality (i.e. worsening inequality). When turning to the financial crisis experiences, Fallon & Lucas (2002) point out the negative effects of the financial crises of the 1990s on labor markets in the form of cuts in real consumption wages and rising unemployment levels. Likewise, Halac & Schmukler (2003) find a significantly negative impact of financial crises on income distribution in Chile, Mexico, Ecuador, Argentina and Uruguay.[9] Senses and Koyuncu (2007), on the other hand, point out significantly negative socio-economic effects (especially regarding labor markets, and inequality and poverty) of financial crisis in Indonesia, Argentina and Turkey. Moreover, Rodrik (1999) suggests that external economic shocks generate domestic social conflicts that lead to growth collapses in countries with weak institutions of conflict management.

To sum up, the existing research suggests that increasing political risk discourages foreign capital inflows while increasing capital flight, and reduces private fixed investment and slows down economic growth. On the other hand, changes in the volatility and levels of capital flows hurt investment and economic growth, which then leads to increasing unemployment, real wage contractions and increasing income inequality and poverty. Increasing unemployment, income inequality and falling real wages then increases socio-political unrest in the form of regime instability, higher crime rates, threats to private property and increasing pressure on the political system for redistributional purposes.

In short, the relationship among international capital flows, private investment and growth, and socio-political risk (SPR) can be summarized as follows:

↑SPR　——————————→　↓Capital Inflows, ↑Capital Outflows

↓Investment
↓Growth

↑SPR　——————————→　↑Volatility of Capital Inflows (Outflows)

↓Investment
↓Growth

In this picture, both the direction and the volatility of international capital flows affect the political risk through domestic investment and growth variables.

In order to emphasize the size of the shock caused by external capital inflows, I turn to the evidence from AMT and compare *gross* capital inflows (that is the sum of the absolute value of monthly net capital inflows by nonresidents for the period covered) with the *net* inflows using the US treasury data (where monthly transactions between the US and corresponding countries are recorded). The reason for this is that the main challenge to developing countries comes not from the size of *net* flows but more importantly from the size of *gross* flows vis-à-vis domestic stock variables. In most cases, the high velocity of capital flows further increases the uncertainty and volatility in key domestic macro variables. Although the gross flows may overstate certain components of short-term capital flows such as lending to domestic banks (because of separate recording of rolled-over credits, that are registered as new lending), it is a functional measure especially given that "the rollover of short-run debts is not neutral in financial terms" (Ocampo, 2001:17). Therefore, focusing only on net flows will give a distorted or at best an incomplete picture of the real shock faced by the recipient countries.

As can be seen from Table 1 below, between 1984 and 2003, the net to gross inflows ratio was 0.36% for Argentina, 2.7% for Mexico and 4% for Turkey. When looking at the breakdown of the flows throughout this period, not surprisingly the majority of inflows took place following the capital account liberalization of 1989-1990. Between 1990 and 2003, gross inflows increased 50 times in Argentina, 21 times in Mexico and 42 times in Turkey compared to the 1984-1989 period. On the other hand the increase in net inflows (that reflect net resource inflow) remained much smaller. While gross inflows stand around $592, $553 and $188 billion in AMT, the net inflows remained at $5, $27 and $7 billion respectively between 1990 and 2003.

Figure 1 further highlights the discrepancy between the gross and net inflows by looking at the ratio between net capital inflows and gross inflows in AMT using the Hodrick-Prescott Filter (HP), which is used to obtain a smooth estimate of the long-term trend component of the series.[10] Accordingly, there is a sudden jump in the volatility of capital inflows to AMT following the capital account liberalization of 1989 as can be seen from the increase in *gross* inflows vis-à-vis *net* inflows. Moreover, the overall trend in the volatility of capital inflows in Mexico starts to diverge with the ones from Argentina and Turkey during the second half of the 1990s. Unlike the other two, net/gross inflows ratio stayed stable especially in the second half of the 1990s, reflecting the persistence of high volatility. The explanation, which is a topic for further research, may lie in the special relationship between Mexico and the US especially following the signing of NAFTA in 1994.

<Insert Table 1 Here>

<Insert Figure 1 Here>

Nevertheless, despite the overwhelmingly contrary evidence, only a few studies have taken into account the endogenous nature of economic variables with socio-political risk and used appropriate econometric techniques. In this respect, Alesina & Perotti (1996) control for the endogeneity between socio-political instability and domestic investment in physical capital using a simultaneous equation setting in a cross-section of 71 countries for the period of 1960-1985 and find results supporting the view that income inequality increases socio-political instability, which then reduces investment. They point out that fiscal redistribution by increasing the tax burden on capitalists and investors reduces the propensity to invest. However, the same policies may reduce social tensions and create a social climate more conducive to productive activities and capital accumulation. Furthermore they find that income distribution does not have any additional effect on investment after controlled for political instability suggesting that income inequality hinders growth through its effect on political instability. Likewise, Alesina et al. (1996) in a simultaneous equation framework endogenizing political instability and economic growth in a sample of 113 countries for the period of 1950-1982 confirm the above findings by showing that political instability reduces growth at a statistically significant level. Yet, they fail to find the same effect from growth to political instability. Likewise, in two case studies, Asteriou & Price (2001) and Fielding (2003) in the case of UK and Israel respectively find that socio-political instability negatively Granger causes investment in nonresidential construction as well as equipment and machinery investment.

Likewise, Campos and Nugent (2002b) obtain results that to some extent challenge the traditional view: They construct an aggregate index of socio-political instability (SPI) for a sample of 98 countries over a period of 1960-1995. They run two separate analyses to test the relationship between political instability and rate of growth, one with standard OLS regression where the dependent variable is rate of growth and independent variable is political instability, and the other one with recognizing the endogeneity between these variables. Standard OLS regressions supports the findings of other papers on this subject; a negative correlation between SPI and growth. However, when they repeat the same exercise with Granger causality tests they find that SPI does not Granger cause growth for the case of whole sample. Campos and Nugent (2002b) repeat the same analysis to investigate the relationship between SPI and investment. They report that while socio-political uncertainty is contemporaneously associated with lower investment, socio-political uncertainty leads to greater investment in the future. On the other hand they found a contemporaneous negative effect of socio-political risk on growth at a statistically significant level even after controlling for the positive impact of risk through investment on growth.

In contrast, Limongi & Przeworski (1994) do not find any significant impact of either political instability on growth or vice versa in the case of ten South American Countries between 1946 and 1988. Similarly, Londregan & Poole (1990) endogenize the growth and political instability in their regression model without finding any evidence of reduced growth as a result of increased political instability.[11]

3.1. The Hypothesis

This section tests the presence of an endogenously determined relationship between political risk and volatility of short-term capital flows in developing countries using evidence from AMT. Unlike others, I employ monthly series on capital flows and country risk that enable the exploration of short term dynamics and help capture the actual levels of short term capital flow volatility. Despite the fact that there is a unanimous consensus in the literature over the speed with which short term capital flows across borders (see Table 1 and Figure 1), the existing research continues to use aggregated annual or in many cases averaged cross section data. Thus, one of the main contentions of the paper is the presence of a general lack of emphasis on the highly volatile nature of capital flows that leads to a measurement error in the net capital flows variable, especially when the variable is aggregated over 1 or 5 year periods.[12] This way, the current analysis will be able to uncover the immediate impact of capital flow volatility on socio-political risk ratings and expectations.

Similar to Campos and Nugent (2002a, 2002b) Asteriou and Price (2001) and Fielding (2001), I employ the Granger-causality framework to analyze the presence and direction of a causal relationship

between the socio-political risk (*SPR)* and the short term capital flow volatility (*SCFV*). Accordingly, having two time series, $SCFV_t$ and SPR_t, $SCFV_t$ is said to Grange cause SPR_t if the lagged coefficients of $SCFV_t$ (i.e. β_{2i}) are jointly significant (equation (1)). And, SPR_t is said to Grange cause $SCFV_t$ if the lagged coefficients of SPR_t (i.e. ρ_{1i}) are jointly significant. Thus, the null hypothesis is that *SCFV* does not Granger-cause *SPR,* and *SPR* does not Granger-cause *SCFV*.

$$SCFV_t = \alpha_1 + \sum_{i=1}^{j} \beta_{1i} SCFV_{t-i} + \sum_{i=1}^{j} \rho_{1i} SPR_{t-i} + \varepsilon_{1t}$$

$$SPR_t = \alpha_2 + \sum_{i=1}^{j} \rho_{2i} SPR_{t-i} + \sum_{i=1}^{j} \beta_{2i} SCFV_{t-i} + \varepsilon_{2t}$$

(1)

where *t* and *i* refer to the time period and the lag structure respectively, and ε_{1t} and ε_{2t} refer to the error terms. In this specification, $SCFV_t$ and SPR_t are assumed to be stationary so that depending on the time-series properties of the series, they denote the level or the first difference of the variables.

SCFV is volatility of short-term capital inflows and *SPR* is socio-political risk index (a higher value indicates lower risk).

Decreasing *SPR* (i.e. increasing risk) is expected to increase the volatility of short-term capital inflows. The intuition is that as political risk increases, international investors' sensitivity to small bad news increases as well. Also together with increasing risk investors are expected to decrease the term structure of their investments and increase the turnover rate and thereby further increase the volatility. On the other hand, increasing *SCFV* is expected to increase socio-political risk (hence reduce *SPR*). However, since the Granger Causality test only provides the direction of causality I also used an Impulse Response analysis. Accordingly, the Impulse Response analysis shows the dynamic response of the endogenous variables in the system equations to a one-time shock to one of the innovations of the system. As discussed by Pasaran & Smith (1998), I use the *generalized impulses* that constructs an orthogonal set of innovations, which does not depend on an arbitrary ordering of the VAR system variables.

3.2. Data Sources and Measurement Issues

In order to test the above hypothesis, I use quarterly volatility of short term capital inflows (by nonresidents) and the level of socio-political risk. As discussed before, the reasons for using such high frequency data are two-folds: a) Given the high velocity with which short term capital travels in and out of countries, annual or even quarterly flows measures do not capture the real magnitudes and the shock waves of these flows. As can be seen from Table 1 and Figure 1, there is a growing gap between gross and net flows in AMT. As a result, when trying to capture the volatility of the flows using these data, there will be a significant bias in the calculations, b) In order to capture the immediate impact of the volatility of these flows on socio-political risk perceptions and expectations in these markets.

However, the available data from domestic sources for AMT are not uniform in period coverage and frequency. For Argentina and Mexico, for example, the short-term capital flows data from balance of payments statistics are quarterly and there are no monthly data available. Therefore, the US Treasury International Capital Reporting System that provides monthly cross border investment transactions of short term and long term securities vis-à-vis the US and foreign countries is used.[13] The data coverage goes as far as 1977 and includes all countries that are reported to have transactions with the US.[14] Given the close proximity of Argentine and Mexican markets to the US the data series are assumed to be close estimates of the total capital inflows to these countries. Also, given the locomotive effect of capital flows from the US, the volatility of these flows is not expected to deviate significantly from the total flows. In addition, in the case of Turkey monthly balance of payments data, which is available from the Central Bank of Republic of Turkey (CBRT) starting from 1992, is also employed. Given that Turkey is not in close proximity to the US market as Argentina and Mexico possible biases caused by the way US treasury

data are recorded will be avoided this way.[15] Both results are reported in the empirical section. As the measure of capital inflows, net monthly inflows are used. However, gross monthly inflows (measured as the sum of the absolute value of all capital flows in and out of the economy by nonresidents in absolute values) are also calculated to capture the total size of capital moving in and out of the economy by the nonresidents (Table 1 and Figure 1).

As the volatility measure, the quarterly standard deviations of net monthly inflows in constant prices are used (Figure 2)[16]. The net inflows are equal to Net sale of long-term [Argentine, Mexican, Turkish] stock and bonds[17] plus changes in the sum of total US banks' claims on foreign public borrowers and unaffiliated foreigners and on own offices.[18] Also, in the case of Turkey the net inflows variable from the CBRT balance of payments data is calculated as the monthly sum of equity securities liabilities, debt securities liabilities, other investment liabilities-loans-banks and other sectors, other investment currency deposits-banks and other investment other liabilities.

<Insert Figure 2 Here>

In addition, given the limitations of the US Treasury data discussed above, for robustness I developed a second volatility measure using quarterly data from the International Financial Statistics of IMF that is equal to the four-quarter moving average standard deviation of quarterly percentage change of real short term capital flows with respect to the same period of previous year. The short term capital flow variable is measured as the sum of equity securities liabilities, debt securities liabilities, other investment liabilities-short-term loans of banks and other sectors, and other investment currency deposits of banks.

Figure 2 displays the *SCFV* measure for all three countries. The sudden spikes correspond to the financial crisis dates such as those in 1994-5 due to the Peso crisis and the Turkish crisis, 1997-8 due to the Asian and Russian crisis, and 2001 crisis in Argentina and Turkey. We also see a trend increase in volatility in Mexico and Turkey following the capital account liberalization in 1989.

The socio-political risk (*SPR*)[19] measures, as shown on Figure 3, are from the International Country Risk Guide Composite Political Risk Index (ICRGP), which is a qualitative risk index varying within the range of 0-100, 100 representing the least risky country, and is based on expert analysis using the following components: Economic Expectations, Economic Planning Failures, Political Leadership, External Conflict, Corruption, Military in Politics, Organized Religion in Politics, Law and Order Tradition, Racial and Nationality Tensions, Political Terrorism, Civil War, Political Party Development, Quality of the Bureaucracy.[20] Apart from its reliability and common usage in the empirical research (see, for example, Diamonte et al., 1996, Bilson et al., 2002), ICRGP has an important advantage over other methods of measuring socio-political risk, which is that of being available monthly starting from 1984. As a result, quarterly political risk and volatility data could be employed.[21]

<Insert Figure 3 Here>

On the other hand, there are certain disadvantages of working with such high frequency data as well as with an expert calculated measure of socio political risk. The most evident one is the fact that it might be difficult to catch the effects of economic growth variables on socio-political risk in such a high frequency data. Secondly, the risk ratings may be biased reflecting the raters' risk perceptions rather than the actual socio-political instability in a country. In this respect the ratings might be backward as well as forward looking (i.e. reflecting the raters' past experiences as well as future expectations based on the information available at time *t*). However, given that the current analysis is trying to capture the contemporaneous impact of the volatility of international capital inflows on socio-political risk, the second difficulty is indeed an advantage for us. To the extent that the ratings reflect current as well as expected risks in the future, the impact of the volatility of these flows on the risk perceptions for the future can be captured as well. The sudden jump in the political risk ratings in the aftermath of the capital account liberalization of 1989 in all three countries provides some support to this assumption by showing

that the raters reflect the predicted effects of economic developments on socio-political risk levels in their political risk measurements.[22]

4. EMPIRICAL RESULTS

4.1. A Granger Causality Analysis

This section presents the results from Granger causality tests between the two key variables, namely the volatility of short-term capital inflows and socio-political risk. Given that Granger test requires stationarity of both variables first-difference transformation is applied when needed.[23] Also, due to sensitivity of the test to different lag specifications, the following tables present the results up to four lags. Accordingly, Tables 2 and 3 show the results from the Granger causality test between *SPR* and *SCFV*.

      As can be seen from Table 2, there appears to be a dynamic relationship between political risk and volatility of short-term capital inflows. In particular, in Argentina and Mexico, a significant Granger causality is discovered from capital flow volatility to political risk. In Turkey, the relationship appears to be holding from political risk to capital flow volatility rather than the other way around. Although the Granger test results failed to show a two-way relationship, the results support the hypothesis regarding the effect of volatility on socio-political risk. However, the results should be taken with caution given the apparent limitations of the test and that Granger causality does not necessarily prove a cause and effect relationship.

<Insert Table 2 Here>

      Table 3 shows the Granger causality test results using the alternative *SCFV* measure that is the four-quarter moving average standard deviation of quarterly percentage change of real short term capital flows with respect to the same period of previous year. The results using this alternative volatility measure confirm the presence of a causal link from capital flow volatility to socio-political instability in Mexico and Turkey. Unlike the findings from Table 2, however, I did not find any Granger causality for Argentina. Moreover, the causal link appears to be reversed for Turkey. The failure to find the Granger causality in the case of Argentina, and finding opposite results for Turkey also confirm the importance of the correct measurement of the volatility variable especially with regard to short-term fluctuations. The overall results call for a reevaluation of the empirical literature in which socio-political risk is taken as exogenous.

<Insert Table 3 Here>

4.2. Impulse Response Analysis

The results from the Impulse Response analysis using unrestricted VAR model provide some support to our initial hypothesis.[24] Table 4 reports the sums of the Impulse Response Function (IRF) coefficients over a period of 12 quarters. The sums can be used to show the response of *SCFV* and *SPR* to a persistent shock to innovations in the related variable. We find that in the case of Argentina a shock to the capital flow volatility has a negative effect on *SPR* (i.e. increases risk) in the first two period that becomes positive thereafter (i.e. decreases risk), which suggest a dynamic adjustment to increasing volatility. In the case of Turkey, however, as predicted I find a persistently negative effect of a shock to *SCFV* on *SPR* all through 12 quarters. In contrast, I find that a shock to *SCFV* causes a persistent decline in socio-political risk in Mexico.[25]

      The positive effect of *SCFV* shock on *SPR* in Mexico may result from some structural characteristics and the special position of Mexico vis-à-vis the US and may be related to the divergent trend in terms of the volatility of capital flows displayed in Figure 1 with respect to Argentina and

Turkey. However, given that I find a similar effect in Argentina too after the 2nd period, there maybe more in this result. One plausible explanation is that it is possible to have a nonlinear relationship between these variables. Accordingly, if the increasing volatility results from increasing capital market integration and capital inflows (as happened during the 1990s in these markets), then increasing volatility may decrease the socio-political risk through the channels discussed before. However, this interpretation requires further exploration and should be taken only as suggestive.

<Insert Table 4 Here>

5. CONCLUSION

Caballero & Dornbusch (2002), following 2001 crisis in Argentina wrote the following lines:

> The truth is that Argentina is bankrupt, bankrupt economically, politically and socially…it is time to get radical… [Argentina] must temporarily surrender its sovereignty on all financial issues…give up much of its monetary, fiscal, regulatory and asset management sovereignty for an extended period.

A similar attitude was taken by Dornbusch et al. (1995) arguing that it was the domestic political events led to the 1994 Mexican crisis such as the Chiapas uprising, which drew international attention to a country divided between its business oriented north and its central American, guerilla-style south, and the assassination of the presidential candidate. Similarly, after more than two decades of experimenting with the neoliberal model in Turkey, it was again the domestic *policy failures*, which brought an end to the ongoing IMF designed stabilization program and led to the 2001 crisis (Deppler, 2001).

In contrast to such views that put all the blame on the crisis-ridden countries, the current paper explored the effects of uncontrolled financial liberalization programs on socio-political instability in developing countries. Overall, the theoretical and empirical evidence imply the presence of a dynamic relationship between the volatility of international capital inflows and political risk as well as the uniqueness of individual country experiences. Unlike the previous research, the current article suggests that domestic socio-political factors cannot be isolated from the fluctuations taking place in the economic arena. In this respect, the focus of attention has been on the socio-political impacts of volatility of capital inflows. The results also put the previous research into question regarding their use of political variables as purely exogenous from economic variables.

The main objective here was to analyze short-term effects of the volatility of capital inflows on socio-political risk expectations, which is why high frequency short–term risk and volatility data are employed. Given that the risk variable used is calculated on a monthly basis, it has the advantage of analyzing the immediate effect of the volatility of capital flows on socio-political risk ratings in these markets. Overall, the results call for a reconsideration of the existing research on the relationship between financial liberalization programs and socio-political developments in developing countries.

In this respect, one limitation of the current analysis is that the expected medium and long term impact of the volatility of capital inflows is assumed to be reflected implicitly in the socio-political risk assessments of the country experts. Although the volatility of capital flows is not expected to immediately show its effects on the socio-political variables in monthly (quarterly) data, it is expected to affect the risk expectations/perceptions of the risk raters. In this respect, it is assumed that the raters take into account the (expected) future as well as the past and current impacts of the volatility variable in their risk assessments. For future research, a panel data analysis using directly observed socio-political risk variables might help test the robustness of this assumption about the behavior of the raters.

6. ENDNOTES

[1] I excluded Chile from this analysis given the presence of capital controls during the 90s, which makes it impossible to compare with AMT in terms of capital flow volatility. In contrast, during this period AMT were among those with the most liberal capital account regimes.

[2] For a review of reform programs in AMT see Demir (2004, 2008b).

[3] However, apart from the problem of endogeneity, their analysis suffers from measurement error. Specifically, their measure of capital flows is based on the net flows (i.e. net of inflows and outflows by *residents* and *nonresidents* alike), which may lead to a biased volatility measure given that capital flows by nonresidents and residents goes in different directions depending on the time period covered (Gabriele et al., 2000, p.1037). This may also explain why according to their volatility estimates, volatility of net capital flows in developing countries is lower during 1990-2000 than during 1980-1990.

[4] Brunetti (1997) and Carmignani (2003) provide a thorough survey of existing research on the uses of socio-political variables in economic analysis. Both papers also offer a comprehensive survey of the respective measures of socio-political variables used in the previous research.

[5] Ros (2003, p.264-302) provides a thorough analysis of the existing research on the relationship between income distribution and economic growth.

[6] Alesina & Tabellini (1989) provides a theoretical model explaining capital flight as a function of political risk.

[7] In contrast, Easterly et al. (2001) found no significant effect of either financial openness or volatility of capital flows on output volatility in a sample of 74 countries between 1960 and 1997. Also, Buch et al. (2002) for 25 OECD countries found that there exists no consistent empirical relationship between financial openness and volatility of output.

[8] The issue of parameter endogeneity is discussed in detail in Carmignani (2003) where it is pointed out that econometric models with political variables suffer from several specification and estimation errors. The problem is more severe for those who employ political risk measures of institutional risk-rating firms without considering possible endogeneity between the risk ratings and market volatility. (for a discussion of procyclical risk ratings see e.g. Kaminsky & Schmukler, 2002).

[9] For a review of existing literature on financial crisis-income distribution relationship, see e.g. Halac & Schmukler (2003).

[10] The Hodrick-Prescott filter is a linear filter that calculates the smoothed series of y and x by minimizing the variance of y around x, subject to a penalty that limits the second difference of x. More specifically, the HP filter chooses x to minimize the following equation:

$$\sum_{t=1}^{T}(y_t - x_t)^2 + \lambda \sum_{t=2}^{T-1}[(x_{t+1} - x_t) - (x_t - x_{t-1})]^2$$

The λ variable is a penalty parameter that controls the smoothness of the series. As λ goes to infinity, x approaches a linear trend. The penalty parameter, λ, that controls the smoothness of the series is set equal 1,600, which is the default value of quarterly series in the Eviews 6.

[11] However their proxy for political uncertainty is restricted to military coups.

[12] For the robustness of this claim, I looked at the annual capital flow volatility measured by net quarterly and monthly capital inflows as defined in the paper using US treasury data. This way we can test the robustness of annual volatility variable using quarterly and monthly data. If we got similar results, then using quarterly data would not cause any significant distortion. However, in the opposite case the results would imply an inconsistency and measurement error as well as efficiency loss from employing an aggregate data rather than high frequency data. The results provide further support to my methodology: the simple correlation between these two annual volatility measures (using quarterly and monthly data) is only 0.36 during the periods analyzed.

[13] For an analysis of the data as well as information on the US system for measuring cross-border securities investment see e.g. Griever et al. (2001). Also for information on data coverage and measurement issues of the data series see the treasury web site at http://www.ustreas.gov/tic/index.html.

[14] The most notable limitation of the data is that "for balance of payments purposes, the monthly transactions reports were designed to provide information on the country through which a transaction was made, and that country is not necessarily the same as the country in which the security's issuer, purchaser, or seller is a resident" (Griever et al., 2002, p.640). For example, when a US resident purchases Turkish stock through an intermediary in Britain, the transaction is recorded as a US purchase of foreign stock through Britain and not Turkey. Therefore "this reporting

procedure results in a bias not only toward over-counting flows to countries that are major financial centers but also toward undercounting flows to other countries" (Ibid. p. 640).

[15] In order to clarify the above point, net quarterly short-term capital inflows figures from the IFS statistics are compared with the US Treasury data. The simple correlation between two datasets is 0.54 for Argentina, 0.52 for Mexico and 0.10 for Turkey. The results suggest that the use data for Argentina and Mexico may be a good substitute for the national BOP data, while for Turkey the precaution to repeat the analysis with the national data is justified. Also for a discussion of such limitations see e.g. Griever et al. (2002, p.640).

[16] Two other alternatives to measure the volatility of capital inflows are the coefficient of variation and normalization via GDP weights. While both methods are widely used in cross-country analysis, they don't affect the results in single country regressions. Also, an important drawback of the second method is that it is biased upwards during and after any economic turmoil where GDP contracts downwards.

[17] From Foreign Purchases and Sales of Long-Term Domestic and Foreign Securities by Type tables of the treasury, Data column titles correspond to column titles in Treasury Bulletin Table CM-V-4, excluding CM-V-4 columns (1) and (8).

[18] There is a change in the data definitions following 2003:2, for a detailed description of the changes refer to Treasury International Capital Reporting System.

[19] International Country Risk Guide Political risk index scores vary within the range 0-100 and therefore conflict with the normality assumption underlying OLS. However, the scores may be interpreted as probabilities as suggested by Feder & Ross (1982), which then allows a logistic transformation on the risk scores such that adjusted SPR: $\ln((SPR/100)/(1-(SPR/100)))$. The transformed index is the one used in the following Granger causality analysis.

[20] Other measures for degree of political instability and risk in the literature include different, and sometimes subjective, measures of political unrest in society such as total number of strikes, demonstrations, riots, revolutions, the frequency of change in political leadership, frequency of change in the head of government or the governing group and military coups, assassinations, existence of war, ethnic divisions and ratio of different language groups and minorities to the dominant group, regional and personal income inequality, etc. Another common way of measuring political instability is through aggregating different individual instability indicators into a general index. (e.g. Barro, 1991; Alesina et al., 1996).

[21] As pointed out by Howell & Chaddick (1994) and Bilson et al. (2002, p.14) Political Risk Services indexes are more reliable and perform better in risk prediction than other major political risk ratings.

[22] For example, the political risk index between January 1991 and January 1992 has jumped up 74% in Turkey possibly reflecting the expected effects of financial reform programs.

[23] The stationarity of the series are tested by the Augmented Dickey-Fuller Test.

[24] We used the lag exclusion tests for each lag in the VAR to determine the lag structure and adopted 2-lags in final specification.

[25] We also find that a shock to SPR decreases SCFV in Argentina all through twelve periods while increasing it after the 2nd period in both Mexico and Turkey.

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Table 1: Gross and Net Capital Inflows

	Millions of US Dollars in Current Prices							
	ARG		*MX*		*TR*		*TR**	
SUMS	Gross	Net	Gross	Net	Gross	Net	Gross	Net
1984-1989	11,685	-2,803	26,497	-11,921	4,511	295		
1984-2003	603,528	2,192	579,636	15,380	192,990	7,678		
1990-2003	591,843	4,995	553,139	27,301	188,479	7,383	198,895	48,449

Source: The US Treasury International Capital Reporting System and Author's calculations.

Notes: Gross stands for gross short-term capital inflows, which are the sum of the absolute value of monthly net capital inflows over the whole period. Net stands for net short-term capital inflows, which are the sum of the monthly net capital inflows for the whole period. ARG, MX and TR are Argentina, Mexico and Turkey respectively.

*The data are for the 1992-2003 period based on Central Bank of Republic of Turkey (CBRT) database.

Figure 1: HP Filtered Net/Gross Capital Inflows Ratio in AMT between 1984-2003
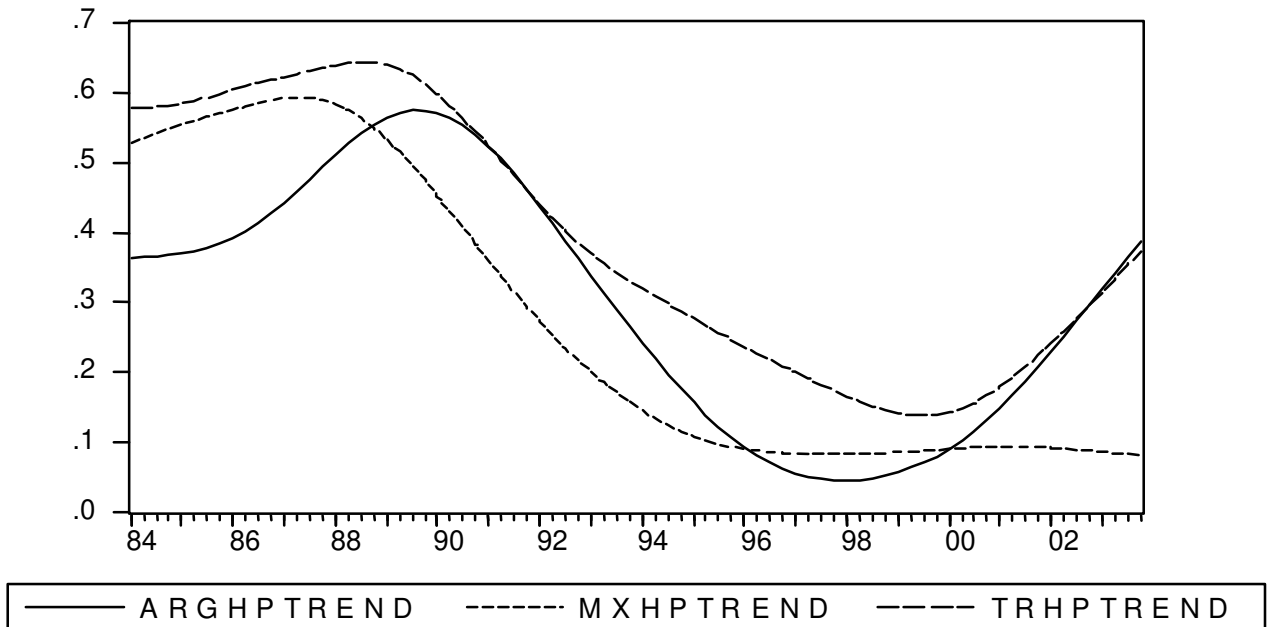
Source: The US Treasury International Capital Reporting System and Author's calculations.

Notes: ARGHPTREND, MXHPTREND and TRHPTREND stand for HP Trend of net/gross short-term capital inflows ratio for Argentina, Mexico and Turkey respectively. The ratio is calculated using quarterly data and is based on the *gross inflows* that are the quarterly sum of the absolute value of monthly net capital inflows, and *net inflows* that are the quarterly sum of the monthly net capital inflows. For convenience of interpretation, net inflows are given in absolute value. A decrease in this ratio reflects increasing volatility.

Figure 2: Short-term Capital Flow Volatility
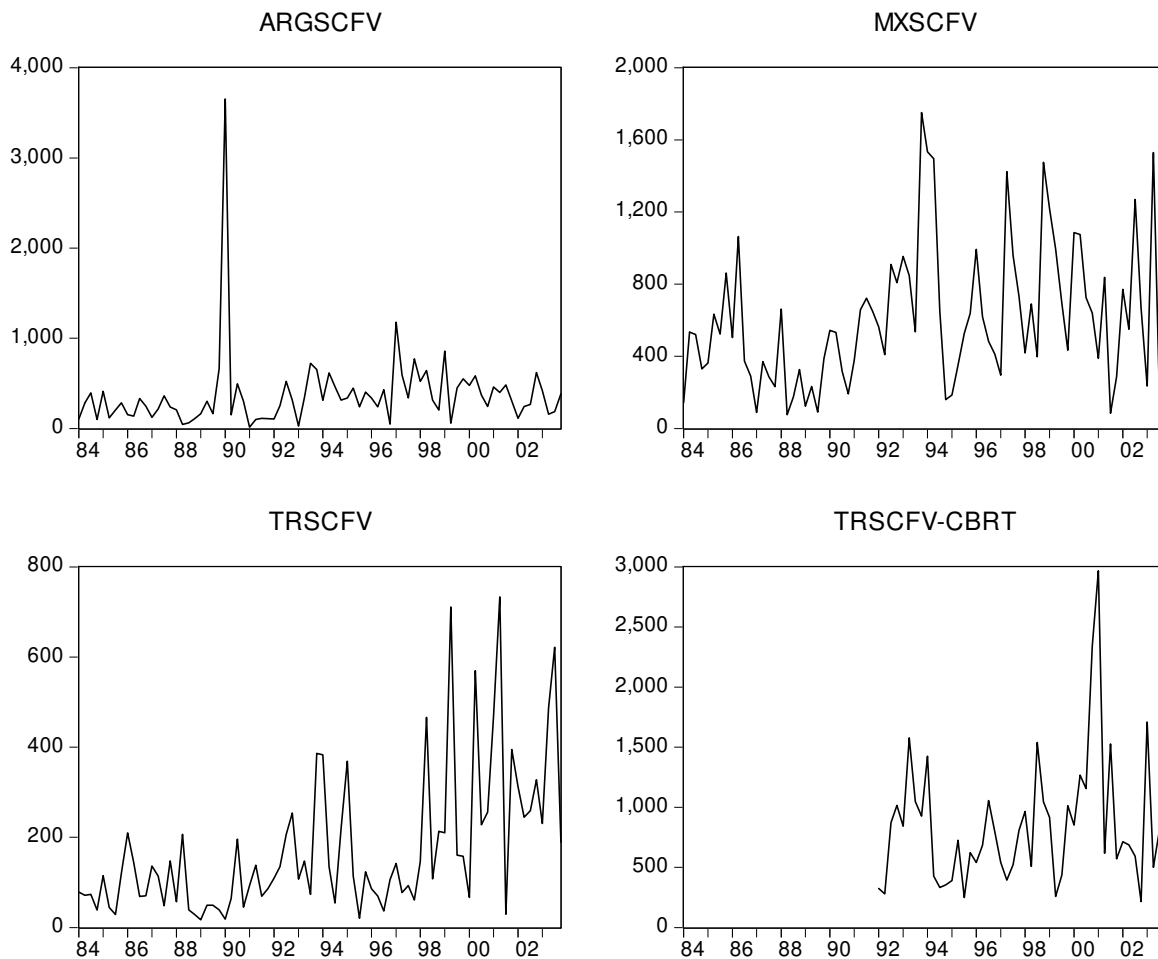
Notes: ARGSCFV, MXSCFV, TRSCFV refer to short-term capital flow volatility in Argentina, Mexico and Turkey respectively using the US treasury data. TRSCFV-CBRT refers to the short-term capital flow volatility in Turkey using the CBRT balance of payments data.

Figure 3: Socio-Political Risk Levels
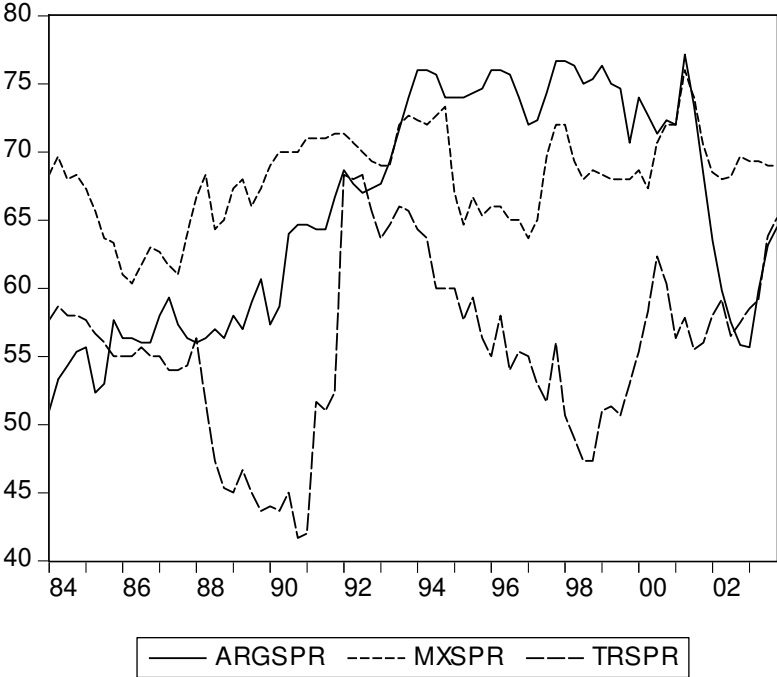
Notes: ARGSPR, MXSPR, TRSPR correspond to ICRG composite socio-political risk index in Argentina, Mexico and Turkey respectively.

Table 2: Granger Causality Test Results

Null Hypothesis:	F-Statistics and Lags:			
	1	2	3	4
Argentina: 1984:1-2003:4				
SCFV does not Granger Cause dSPR	0.1	2.8*	2.4*	1.7
dSPR does not Granger Cause SCFV	1.2	0.6	0.5	0.4
Mexico: 1984:1-2003:4				
SCFV does not Granger Cause SPR	5.2**	2.6*	2.0	1.8
SPR does not Granger Cause SCFV	0.1	1.0	0.9	1.4
Turkey: 1984:1-2003:4				
dSCFV does not Granger Cause dSPR	0.2	0.6	1.2	0.8
dSPR does not Granger Cause dSCFV	0.2	1.4	2.8**	2.3*
Turkey[a]: 1992:2003:4				
dSCFV does not Granger Cause dSPR	0.007	0.2	0.2	0.3
dSPR does not Granger Cause dSCFV	4.6**	2.2	2.4*	1.7

Notes: (*), (**), (***) refer to significance at 10, 5 and 1 percent level respectively; d refers to first differencing; *SPR* is the International Country Risk Guide Political Risk Rating subject to a logistical transformation as described in the endnote 19, *SCFV* is the standard deviation of real net short-term capital inflows (by non-residents) using the US Treasury data.

[a] *SCFV* is standard deviation of real net short-term capital inflows using Central Bank of Turkey monthly balance of payments statistics.

Table 3: Granger Causality Test Results: alternative definition

Null Hypothesis:	F-Statistics and Lags:			
	1	2	3	4
Argentina: 1984:1-2003:4				
SCFV does not Granger Cause dSPR	0.2	0.2	0.1	0.04
dSPR does not Granger Cause SCFV	2.4	1.5	0.7	0.6
Mexico: 1984:1-2003:4				
SCFV does not Granger Cause SPR	2.6*	7.2***	5.2***	3.8***
SPR does not Granger Cause SCFV	0.2	0.05	0.2	0.3
Turkey: 1986:1-2003:4				
dSCFV does not Granger Cause dSPR	0.7	1.3	4.9***	5.2***
dSPR does not Granger Cause dSCFV	0.3	0.4	0.3	1.4

Notes: *SCFV* is measured using the four-quarter moving average standard deviation of quarterly percentage change of real short term capital flows with respect to the same period of previous year.

Table 4: Accumulated Response of SPR to one standard deviation shock to SCFV

Period	ARG SCFV	MX SCFV	TR dSCFV
1	-0.017	0.013	-0.014
2	-0.018	0.029	-0.006
3	0.008	0.038	-0.001
4	0.015	0.037	-0.006
5	0.017	0.032	-0.005
6	0.018	0.026	-0.004
7	0.018	0.020	-0.005
8	0.019	0.016	-0.005
9	0.019	0.013	-0.004
10	0.019	0.010	-0.005
11	0.019	0.008	-0.005
12	0.019	0.006	-0.005

Notes: In Argentina and Turkey the *SPR* variable is in first differences as in Table 2 and 3. *SCFV* is the standard deviation of real net short-term capital inflows (by non-residents) using the US Treasury data. For Turkey, the *SCFV* is measured using the CBRT data.