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MARMARA UNIVERSITY
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THE IMPACT OF SHORT TERM FOREIGN PORTFOLIO INVESTMENTS ON LIQUIDITY AND EFFICIENCY IN ISE

MASTER OF THESIS

Tugba TURKMEN

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Adviser: YRD. DOÇ. DR. CEYDA RUKİYE ÖZTÜRK

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Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlüğü

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ÖZET

KISA VADELİ YABANCI PORTFÖY YATIRIMLARININ IMKB'DE ETKİN PİYASA KAVRAMI OLUŞUMU VE LİKİDİTE ÜZERİNE ETKİSİ

1980'lerden bugüne dünyadaki finansal dengeler büyük oranda değişime uğramıştır. Uluslararası sermaye hareketlerinin liberalleşmesi, bilişim teknolojisindeki ilerlemeler ve sermaye hareketini kısıtlayıcı şartların kaldırılması gibi birçok etken bu değişime neden olmuştur. Bunun sonucu olarak da global sermaye akışı ve uluslararası finansal entegrasyon artmıştır. Bu çalışma teorik ve ampirik olarak kısa vadeli yabancı hisse senedi portföy yatırımlarının sermaye piyasalarının gelişimi ve borsada etkin piyasa kavramının oluşması üzerindeki etkilerini ortaya koymaktadır. Araştırma sonucunda, yabancı portföy yatırımlarının IMKB 100 endeks getirilerinde, borsa işlem hacmi, sözleşme adedi, işlem değeri/GSMH ve piyasa değeri/GSMH gibi değerler üzerinde belirleyici etkisi olduğu anlaşılmıştır. Ayrıca çalışma sonucunda devlet iç borçlanma senetleri faiz oranlarının ve petrol varil fiyatlarının kısa vadeli yabancı portföy yatırımlarının hareketinde önemli bir etken olduğu tespit edilmiştir.

GENERAL KNOWLEDGE

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Key Words:	**Foreign portfolio equity flows, current account balance, market efficiency, liquidity**

ABSTRACT

THE IMPACT OF SHORT TERM FOREIGN PORTFOLIO INVESTMENTS ON LIQUIDITY AND EFFICIENCY IN ISE

The financial environment has changed significantly since the beginning of the 1980s. Several factors; including the liberalization of international capital movements, financial deregulation and advances in information technology, have contributed to this change. The result is an increase in cross-border capital flows and international financial integration. This thesis theoretically and empirically investigates the effect of short term portfolio equity investments on stock market development indicators. Among the indicators it was identified, portfolio equity flows have predictive power over value traded/GDP, MCAP/GDP, trading volume, number of contracts traded and IMKB 100 index returns. Also DIBS and crude oil prices have predictive power over short term portfolio flows.

ÖNSÖZ

1980'lerden bugüne dünyadaki finansal dengeler büyük oranda değişime uğramıştır. Uluslararası sermaye hareketlerinin liberalleşmesi, bilişim teknolojisindeki ilerlemeler ve sermaye hareketini kısıtlayıcı şartların kaldırılması gibi birçok etken bu değişime neden olmuştur. Bunun sonucu olarak da global sermaye akışı ve uluslararası finansal entegrasyon artmıştır. Bu çalışma teorik ve ampirik olarak kısa vadeli yabancı hisse senedi portföy yatırımlarının sermaye piyasalarının gelişimi ve borsada etkin piyasa kavramının oluşması üzerindeki etkilerini ortaya koymaktadır. Bu çalışmayı sonuçlandırmamda görüşleri ile katkıda bulunan değerli hocam Yrd. Doç. Dr. Ceyda Rukiye Öztürk'e ve yorumlarıyla bana yol gösteren babam Tevfik Türkmen'e çok teşekkür eder, çalışmanın tüm ilgililere yararlı olmasını dilerim.

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ABBREVIATIONS

ADR: American Depository receipt

DIBS: Compounded interest rates on Treasury discounted auctions

D/P: Dividends Yield Ratio

FPI: Foreign Portfolio Investment

GDP: Gross Domestic Product

GDR: Global Depository Receipt

GNP: Gross National product

IFS: International Financial statistics

IMKB: Istanbul Stock Exchange

IMF: International Monetary Fund

IPO: Initial Public Offering

MCAP: Market capitalization of IMKB 100 index

P/E: Price to Earnings Ratio

SDR: Special drawing rights

TR: Turnover ratio

UNCTAD: United Nations Conference on Trade and Development

VT: Value traded

INTRODUCTION

The financial environment has changed significantly since the beginning of the 1980s. Several factors; including the liberalization of international capital movements, financial deregulation and advances in information technology, have contributed to this change. The result is an increase in cross-border capital flows and international financial integration. Since then, testing for the efficiency of financial markets has generated enormous attention throughout the literature.

The concept of efficiency is central to finance and the Efficient Markets Theory is a field of economics which seeks to explain the workings of capital markets such as the stock market. The Efficient Market Hypothesis evolved in the 1960s from the Ph.D. dissertation of Eugene Fama and he defined an efficient market as:

> "An 'efficient' market is defined as a market where there are large numbers of rational, profit-maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value." (Fama, 1970)

The theory assumes several things including perfect information, continuous receipt of news (information) and a marketplace with many small participants (rather than one or more large ones with the power to influence prices).

Tests of market efficiency provide an important. An efficient stock market has an important role in the economy, in view of the fact that it supplies capital to companies and therefore shows the way to a well functioning economic society. (De Ridder, 2002) If stock market is efficient, capital is then supplied to the companies with the best potential and used for production that will benefit the whole economic society.

The ability of stock markets to play the role that is ascribed to them-attracting foreign investment, boosting domestic saving and improving the pricing and availability of capital depends upon the existence of market efficiency. In an efficient market, all relevant information is reflected on prices of stocks, and hence stock returns will display

unpredictable (or random walk) behavior. A market following a random walk [1] is consistent with equity being appropriately priced at an equilibrium level, whereas the absence of a random walk infers distortions in the pricing of capital and risk. This has important implications for the allocation of capital within an economy and hence overall financial development.

Starting in the late 1980s, emerging stock markets had begun to play an important role in the global economy especially after huge portfolio capital flows pouring into these countries. The process of globalization and continuing deregulation of capital markets have accelerated the international financial integration of the emerging Asian and Latin American economies as well as of the Central and Eastern European Countries in transition.

Increased capital flows among developing countries over the past ten years are driven by the technological innovations that support globalization, rising incomes in developing countries and increasing policies toward openness in trade and financial markets. In the late 1980s and early 1990s a number of developing economies initiated reforms to liberalize their capital markets. These reforms made it easier for both foreign investors to access the local market and for domestic investors to diversify their portfolios internationally. Increasingly, foreign equity and bond purchases have become an important source of capital for developing countries.

Foreign portfolio flows may reflect deep changes in the functioning of an emerging market economy and its capital markets. The estimates of gross portfolio investment flows in developing countries show that, these flows have been going to a few developing countries. It is stated by the World Bank (2001), Global Development Finance in 2000, just four countries Brazil, China, Mexico and Turkey accounted for around 85 per cent of all equity flows to developing countries. In 2005, as in the recent past, portfolio equity investments remained concentrated in major emerging markets. The Asia region continued to account for the lion's share (about 63 percent) of total portfolio equity flows, with China, India, and Thailand together making up about 94 percent of the

[1] The random walk hypothesis is a financial theory stating that stock market prices evolve according to a random walk and thus the prices of the stock market cannot be predicted. The term was popularized by the 1973 book, *A Random Walk Down Wall Street*, by Burton Malkiel, currently a Professor of Economics and Finance at Princeton University

region's total. The region continues to be the primary recipient of private equity investment, attracting again more than 60% of net portfolio equity investment flows to emerging market economies in 2006 with Turkey being one of the top ten recipients of total portfolio inflows between years 1994 and 2006.(Bhaskaran, Sundararajan and Kohli; 2005)

Attracting capital flows; however has its advantages and disadvantages. Economic arguments for increased portfolio investment focus on its contribution to industrial development and growth whereas increasing participation of foreign institutional investors in developing country markets may be a factor leading to increased volatility. The issue of "portfolio equity flows are highly volatile and easily reversible" has raised the question of "will markets lose all the gains in terms of size, and liquidity or are some of the favorable effects of foreign equity investment on emerging stock markets irreversible?"

Existing literature focuses on testing "forms of market efficiency" by concentrating on stock prices. In this view, this paper can be viewed as a recent trend in the literature that investigates the effect of foreign equity investment on general economy and whether foreign portfolio flows of the last decade has had any effect on market efficiency and stock market development in Turkey.

The organization of this paper is broken into four main parts. First, Chapter I presents the theoretical relationship between foreign portfolio investments and the Efficient Market Hypothesis. This chapter begins with an overview of the concept of foreign portfolio investments and the underlying factors attracting portfolio equity investment into emerging markets; followed by the discussion of the costs and benefits of foreign portfolio investments and finally presents an overview of the concept of market efficiency and demonstrates several measurement tools by referring to the existing literature. This chapter theoretically demonstrates why foreign portfolio equity flows should bring efficiency in emerging markets.

Chapter II discusses Turkish economic history on foreign portfolio investments and market efficiency. This chapter begins with an overview of Turkish economy between years 1980-2006 by particularly referring to the current account balance followed by the discussion of the role of the Turkish Stock Market's place on general

macroeconomic balances and finally illustrates theoretically the effect of foreign portfolio inflows on stock market efficiency.

Chapter III discusses briefly the effects of foreign portfolio investments on other emerging market economies and their possible effects on stock market efficiency. This chapter presents a comparative analysis of the other emerging market economies and gives reference studies concerning the context of this thesis from existing literature.

Chapter IV empirically demonstrates whether there is a relationship between foreign portfolio equity flows and stock market efficiency in Turkey.

1. FOREIGN PORTFOLIO FLOWS AND ITS RELATION WITH EFFICIENT MARKET HYPOTHESIS

Economic literature seems to agree on the primary driving forces behind international investment: better risk diversification and higher returns. International investments are an effective method of portfolio diversification[2] and economic theory suggests that capital will move from countries where it is abundant to countries where it is scarce because the returns on new investment opportunities are higher where capital is limited. Generally four types of international investment (capital flows) can be distinguished in the existing literature: foreign direct investment, equity portfolio investment, bond finance and commercial bank lending. Over the past few decades, these flows have facilitated the efficient cross border utilization of capital and have provided liquidity in financial markets.

Foreign direct investment in its broadest term can be defined as a long-term investment by a foreign direct investor in an enterprise resident in an economy other than that in which the foreign direct investor is based.[3] It can provide investing firm new markets and marketing channels, cheaper production facilities, access to new technology, products, skills and financing. For a host country or the foreign firm which receives the investment, it can provide a source of new technologies, capital, processes, products, organizational technologies and management skills, and provide a strong economic development.

Foreign portfolio equity investment instruments in developing countries, take two main forms: Equity instruments, such as: direct equity purchases in domestic stock markets, venture capital funds, country funds, American depository receipts and Global depository receipts and; Quasi-equity instruments, including: convertible bonds, and bonds with equity warrants. According to the World bank(2004) portfolio equity investment takes place when investors purchase shares of a company through an international public offering(IPO) or buy American Depository or Global Depository Receipts (ADRs and GDRs) [4]. Moreover, convertible bonds and equity warrants give

[2] See Markowitz "Portfolio Theory", 1958

[3] http://www.chinadaily.com.cn/bizchina/2006-10/17/content_710167.htm

[4] The stocks of foreign companies that trade in the U.S. markets are traded as American Depositary Receipts (ADRs). U.S. depositary banks issue these stocks and each ADR represents one or more shares of

investors an option to convert to equity at a later date are used as vehicles of portfolio equity flows.

Developing countries have also accessed finance through the international capital markets by issuing government or corporate bonds or shares. Bond finance is a kind of portfolio activity in which governments and firms issue bonds to foreign investors. These bonds can be issued in either the domestic currency or in foreign currencies and they can involve different kinds of default risks. [5]

Commercial bank lending is another form of debt. Commercial bank loans can be short or long term can be made with fixed or flexible interest rates and can take the form of inter-bank loans. A single bank or a syndicate of banks can be involved in any particular loan package. In particular, loans in foreign exchange provide finance to governments to overcome balance-of-payments problems and, as such, they are very useful to governments which are short of foreign exchange..

Since this study focuses on portfolio equity investment of foreigners in developing country stock markets, other forms of international investment will not be considered thereafter.

1.1 MOTIVES BEHIND CROSS COUNTRY PORTFOLIO EQUITY FLOWS AND THE ROLE OF EMERGING MARKETS

The underlying factors driving global portfolio investors to take an interest in developing country equity markets are complex, involving the interactions of various elements related to the external environment, investors' strategies and specific host-country determinants. There are a wide variety of reasons affecting portfolio equity flows to developing countries and traditionally, capital flows have been analyzed in terms of so called "push" and "pull" factors as in Agenor(1998), Mody, Taylor and Kim(2001) and Ferucci, Herzberg, Soussa and Taylor(2004). Push factors refer to global determinants from the world financial markets to emerging markets while pull factors refer to country specific elements that reflect domestic fundamentals and investment opportunities.

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foreign stock or a fraction of a share. Similarly, GDR is a bank certificate issued in more than one country for shares in a foreign company. The shares are held by a foreign branch of an international bank. The shares trade as domestic shares, but are offered for sale globally through the various bank branches.
Source: (*http://www.sec.gov/answers/adrs.htm)*

[5] Alexander,J&Sharpe W (1999)"Fundamentals of Investments"

1.1.1 Pull Factors

Pull factors (internal variables) can be analyzed under economic determinants, policy/regulatory determinants and political and governance determinants.

Economic Determinants

Economic determinants are not directly linked to policies aimed at attracting external portfolio inflows. Instead, they are a reflection of the general health of the host country's economy, and the potential of firms operating in the country to earn profits and obtain a satisfactory return on investment.

Investors will typically focus on the following factors: the rate of economic growth; the degree of exchange rate stability; the degree of macroeconomic stability; the level of foreign exchange reserves; the degree of soundness of the domestic financial system; the robustness of local stock and bond markets (amount of liquidity, depth and breadth); the level of real interest rates; credit rating of the country and financial account liberalization (degree of openness).[6]

Global investors are actively searching for areas and instruments offering attractive returns. A key attraction of emerging markets is that they are generally relatively uncorrelated with major markets and with each other. Emerging market countries have generally provided higher real interest rates (nominal interest rates are also higher because of high inflation rates) than developed economies since stock markets in developing countries are widely viewed as high risky assets. This perception is based on high short-term volatility, since emerging markets fluctuate wildly in response to daily changes in the developed countries' stock market indexes.

In analyzing the expected rates of return for host country equity markets, investors tend to look for prospects in the countries' economic growth and also assess the level of currency risk involved.

The rate of economic growth; macroeconomic balances as well as the potential rate of growth of the host country are important influences on decisions on where to

[6] UNCTAD "Comprehensive study of the interrelationship between foreign direct investment and foreign portfolio investment" (UNCTAD/GDS/GFSB/5), p. 12.

invest. Because the rate of economic growth in most developing countries is expected to exceed the rate of growth in the developed world, it is also supposed that long-run stock returns in emerging markets will also exceed those of developed markets (Malkiel and Mei, 1998; Mobius, 1994). Henry and Kannan (2007) in their studies; have empirically indicated by using The Gordon Model[7] that emerging country stock markets provided higher average expected returns than the U.S stock markets between years 1985-2005. To the extent that corporate earnings grow, stock prices will also increase and when there is good news about the future that is not captured in current earnings, prices will jump relative to earnings and existing shareholders will experience unexpected capital gains.

Another indicator for economic performance is government budget deficit (or budget surplus). When there are large government budget deficits, the expectation is that government will acquire domestic debt or external debt, or both. On one level, the deficits could mean access to funds for capital flight; on another level, the deficits could signal macroeconomic mismanagement. If capital holders are unsure about how the budget deficits will be managed, or if they are unconvinced that the deficits will be managed well, they will pull out capital to avoid unfavorable developments.

In addition to government budget deficits (or surpluses), another alternative measure is taxation. For instance, when the government has a favorable tax revenue position, then external borrowing will no longer be needed as there are available resources to finance public expenditure. In fact, the government would have funds to pay its debt obligations. But a favorable tax revenue position could also mean that the government is able to borrow more funds, because the ability to collect taxes (and the availability of resources) improves the government's credit rating. Similarly, the desire to avoid taxes could be a motive for capital flight.

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[7] The Gordon Model says that the price of a stock should be equal to the dividend payment divided by the difference between the required rate of return for the stock and the expected long-term growth rate of dividends. Dividend growth model is illustrated by the formula; $P=D/r-g^{e}$; where "D" is the dividend, "P" is the stock price, "r" is the required rate of return and "g^{e}" is the expected growth rate of the dividend stream. Henry and Kannan (2007) assumes that in the long-run earnings grow at the same rate as GDP and used five year geometric average of the expected GDP growth rate for determination of expected growth rate of dividends.

Exchange rate stability is another indicator for capital flows. Especially after sharp exchange rate devaluations in emerging market countries in 1997-2001,[8] global investors became substantially concerned with currency risk. (Bhaskaran & Sundararajan, 2005)

Exchange rate systems are mainly classified as fixed system in one side and the floating system in the other side with several intermediate systems in between.

The main feature of the floating exchange rate systems is that the exchange rate is determined by supply and demand forces of the economy in which there is no government intervention in the determination of exchange rates. When considered for the appropriateness in developing countries, exchange rates are highly volatile and this creates uncertainty and financial turmoil increasing the transaction costs, inflation and interest rates. Compared to the major industrial economies, emerging market economies are much more dependent on foreign trade and heavily relies on foreign external debt. Consequently, sharp exchange rate movements generate debt servicing difficulties, liquidity and solvency problems which global portfolio investors will perceive unfavorable. (Ross&Westerfield, 2001)

Fixed exchange rate regimes can be classified under Soft Peg and Hard Peg regimes. In Soft-peg exchange rate regimes, central bank announces a central exchange rate and exchange rate is allowed to fluctuate within this specified interval. Hard Peg exchange rate regimes differ in Soft Pegs that, exchange rate level is supported by a legislative commitment. In intermediate regimes, central bank do not announce a target exchange rate or an exchange rate band but intervene in the market (by using foreign exchange reserves of central bank) to keep the rate at an unknown degree. Fixed exchange rates have been favored by their advocates because they are thought to provide a better environment of stability for the growth of trade. It is argued that fixed or predetermined exchange rate regimes provided an effective device for guiding a disinflation program and for maintaining macroeconomic stability. (Calvo 1999, Hanke and Schuller 1998,Hausmann 1999)

[8] The simultaneous occurrence of devaluation and recession in Mexico in 1995, economic crisis in Argentina between years 1999-2002, East Asian currency crisis in 1997, Russian financial crisis in 1998.

Under fully fixed exchange rate systems, capital flows can help avoid fluctuations in the domestic price level in response to reversible movements in the balance of payments. But overvalued exchange rate raises expectations for a devaluation of the local currency. The farther the adjustment is postponed, the stronger the expectation will be for the devaluation. In the absence of capital flows, a current account deficit caused by loss of competitiveness can only be financed by reserve draw downs and official borrowing. Eventually, the perpetuation of inflation differentials can no longer be sustained (perhaps because borrowing opportunities are exhausted). Therefore, a painful and potentially wasteful process of deflation becomes necessary if the fixed exchange rate is to be maintained. Any sign of economic growth slowdown will be followed by economic instability and eventually drive capital out of the country. (Ross&Westerfield,2001)

Freytag (2002)[9] asserts that "monetary policy, including the exchange-rate regime, needs to be adjusted with institutional constraints to be successful. Those countries that reform their exchange rate policy in accordance to such constraints or that reform both the exchange-rate regime and other parts of the economic order, will be more successful than others and be able to drive sustainable international investment in the long-run"

Besides exchange rate policy, longer-term factors that affect the sustainability of an emerging market country's exchange rate regime such as the consistency of monetary and fiscal policies, current account balances, financial sector sustainability issues such as the growth of consumer and corporate debt is also considered by global investors. Therefore the adoption of exchange rate regime by developing countries and its good management is crucial in giving way or attracting global portfolio flows to the equity markets.

A country's creditworthiness measured by credit ratings from various agencies also influences investors' behavior and the surge of capital inflows in middle-income developing countries.[10] From the international investor's point of view, both the credit rating of the country and the rating received by particular issues are important. Creditworthiness reflects the overall political and economic factors that may affect the

[9] OECD Development Centre, 2002
[10] see Fernandez-Aria, 1996

country's willingness and ability to repay its debt obligations and credit ratings reflect the opportunities and risks of investing in the country, and are important in attracting capital flows.

Finally, a single most important factor that affects capital flows is the government's policies on financial account liberalization. A country's decision to open up and enhance the access of foreign investors to the equity and debt of its companies will attract global investors seeking diversification and new opportunities for returns. Actually, full capital account convertibility increases a country's attractiveness to foreign investors (Nsouli and Rached, 1998). Many developing countries increased openness of their markets, through the lowering of barriers to trade and foreign investment, the liberalization of domestic financial markets and removal of restrictions on capital movements in order to integrate with the global financial markets and attract international funds for financing purposes.

Policy-Regulatory Determinants

The other set of determinants to which foreign investors pay particular attention includes policy and regulatory frameworks in emerging markets. These are the factors over which domestic governments have a direct influence.

According to an investor survey conducted in 1999 by the United Nations conference on Trade and Development (UNCTAD) the following factors drive the process of host country selection: the ease of repatriating dividends and capital; the rate of the domestic capital gains tax; the soundness of stock and bond market regulation; the quality of domestic accounting and disclosure standards; the speed and reliability of the settlement system; the availability of domestic custodians and brokers; and the degree of protection of investor rights.

Portfolio equity flows to emerging markets are significantly linked to security-market infrastructure, shareholder rights, and quality of accounting standards (Aggarwal, Klappen and Wysocki, 2003). Several infrastructural factors play a key role in shaping the perceived returns and riskiness of investing in emerging markets' equity securities. These include corporate governance and transparency, market liquidity and macroeconomic and financial stability policy frameworks.

Corporate governance includes the relationship between shareholders, creditors, and corporations; between financial markets, institutions, and corporations; and between employees and corporations. (Bodie&Merton, 1998) Corporate governance also supports the issue of corporate social responsibility which deals with the firm's behavior with respect to culture and the environment. Better corporate governance frameworks benefit firms through greater access to financing, lower cost of capital, better firm performance, and more favorable treatment of all stakeholders. The quality of the corporate governance framework affects not only the access to and amount of external financing, but also the cost of capital and firm valuation.[11] Outsiders are less willing to provide financing and are more likely to charge higher rates if they are less assured that they will get an adequate rate of return. Corporate governance can also add value by improving the performance of firms, through more efficient management, better asset allocation, better labor policies, and similar efficiency improvements.

Similarly, a study of the stock performance of listed companies from Indonesia, Korea, Malaysia, the Philippines, and Thailand found that performance is better in firms with higher accounting disclosure quality and higher outside ownership concentration (Mitton 2002).

The Asian financial crisis highlighted the crucial importance of good corporate governance, transparency of management and majority shareholders actions affecting companies that foreigners invest in and the accuracy of financial reports presented to the investment community. The creation of effective regulatory and supervisory institutions and the formulation of appropriate policy framework for good governance in emerging market countries have thus become important. [12]

Market liquidity has also become an important determinant of flows of portfolio capital into emerging market countries' equities. Global investors actively seek investments where there are significant amounts of daily trading enabling them to buy and sell these securities without moving the price against them and also ensuring that they can enter and exit these investments easily as and when they desire to. Market liquidity is influenced by both the size and pattern of ownership of listed securities, and

[11] Cadbury, A, 2003 "Corporate Governance and Development",Worldbank
[12] Mishkin, F,1999 "Lessons from the Asian Crisis",National Bureau of Economic Research

the micro-structure of the markets, including the trading systems. The creation of a liquid security market with efficient trading arrangements is thus important to attract both domestic and foreign investment.

Political and Governance Determinants

The degree of perceived political stability may also influence capital flows. Models that illustrate the impact of political instability on capital flight can be found in Alesina and Tabellini (1989), Tornell and Velasco (1992), and Bhattacharya (1999). It is shown that when different governments with different interest groups supporting them come into power, uncertainty increases with respect to future fiscal policies. Such an unstable political situation may, for example, lead to a political business cycle. Political instability may also turn into political unrest, leading to strikes, riots, assassinations, etc. Finally, different forms of the regime type (democracy, autocracy, etc.) may have a different impact on the degree of uncertainty about future policies and their outcomes.

Political instability may thus have an influence on the possibility that the government may in one way or another deteriorate future value of asset holdings. The erosion of future wealth is based on the expectation that domestic political instability causes macroeconomic instability, leading to rising budget deficits, current account deficits, exchange rate uncertainty and high inflation. If there is political instability or uncertainty, the economic environment is insecure and capital flees. The capacity of institutions to respond to political and economic challenges is important as well.

Direct measures of political (or policy) uncertainty have been used, such as the number of labor strikes or the election of a left-wing party (see, e.g., Fatehi and Gupta, 1992; Gibson and Tskalotos, 1993), political crisis or the adoption of structural reform programs (see, e.g., Chipalkatti and Rishi, 2001). Indirect measures have also been used such as proxies for political instability (see, e.g., Ndikumana and Boyce, 2003), the variance of the foreign exchange rate (e.g., Harrigan, Mavrotas and Yusop, 2000), or the level of tourist arrivals (see, e.g., Smit and Mocke, 1991). There are market-based indicators, too, like the market-risk perception of bankers (see, e.g., Collier, Hoeffler and Patillo, 2001). Regardless of the indicator used, the empirical results indicate that political risk and policy uncertainty are positively linked with capital flight.

1.1.2 Push Factors

The major external factors behind the increase in foreign portfolio inflows to emerging markets are the liberalization and globalization of financial markets, the concentration of substantial financial resources in the hands of institutional investors and the role of foreign interest rates.

Financial-market liberalization, the major advances in financial instruments, and the rapid flow of market information, due to the improvements in communications technology, facilitated the globalization of financial markets, which implies that financial capital can now move more freely and at lower cost between countries.

International investors, who are willing to reduce their risks and diversify their portfolios, consider investing in emerging markets because the correlation between equity returns from different countries is lower than equity returns in the same country. This is especially true for investments in developing countries, because their stock returns tend to have a low correlation with those of industrial countries (Bekaert, 1995).

Investing in emerging stock markets potentially lowers portfolio risk for the global investor. Emerging stock markets are weakly, and in some cases negatively, correlated with stock markets in industrial countries, so these markets provide substantial potential risk reduction benefits to international investors.

Available empirical studies suggest that foreign investors initially turned to emerging markets largely because of the decline in global interest rates and the slow down in economic activity in industrial countries, in the early 1990s.

Low international interest rates are important in encouraging inflows into emerging market bonds and stocks. Studies suggest that the rise in capital flows in the early 1990s was primarily due to the decline in global, and especially in US interest rates and the cyclical downturn in industrial countries. (Calvo, Leiderman and Reinhart, 1993:108). Similarly, Fernandez-Arias (1994) emphasize the impact of low interest rates and low economic growth in developed countries which "push" investors to seek higher returns in emerging markets. Actually, low rates of return to capital would push back capital to locations where the rates of return are relatively higher and vice versa. Other things equal, lower interest rates in creditor countries, make investing in them less

attractive than investing abroad, (the asset substitution effect/channel); and appear to have improved the creditworthiness of heavily indebted countries that borrow at these rates, (the creditworthiness effect). (Goldstein,1995).

Therefore, the surge of capital inflows in most middle-income countries appear to have been largely pushed by low returns in developed countries. Frankel and Okongwu (1996) in a study of the determinants of portfolio capital flows in seven Latin American and East Asian countries over the period 1987–1994, have provided econometric evidence suggesting that low interest rates prevailing in the US in the early 1990s had a very significant effect on capital flows to developing countries.

GDP growth rate of the developed countries is another external factor that causes capital flows to developing countries. The recessions in the U.S. and Japan in the early 1990s made profit opportunities in developing countries more attractive, although this factor became less important in generating capital flows to Latin America and Asia as the OECD economies moved toward recovery in the mid-1990s (see Chuhan et al., 1998, and Calvo et al., 1996).

Economic growth and related monetary policy cycles in developed countries, especially the United States, appear to have a disproportionately powerful influence over net flows of portfolio equity capital to emerging market countries. First, easy monetary conditions in the US and other OECD countries tend to create conditions of excess liquidity that in turn may be channeled into investments primarily into financial assets in the developed countries in the first instance. However, some part of this will tend to flow into emerging market countries as portfolio capital. Second, as easy monetary conditions are adopted in developed economies, market-determined yields on financial assets will tend to fall, giving incentive to global investors to search for higher yielding assets elsewhere. If, at the same time, the global economy is growing well, global investors' risk tolerance tends to improve. This often causes an inflow of portfolio capital into riskier assets such as emerging market countries' bonds and equities, and so depressing yields or raising equity valuations.

Economic situation of the source country, such as low interest rates and poor growth prospects are an important but by no means decisive determinant of equity portfolio flows.

1.2. COSTS AND BENEFITS OF FOREIGN PORTFOLIO INVESTMENTS

The acquisition of securities by foreigners, directly in the local equity market has both its advantages and disadvantages. This type of flow contributes directly to the finance of domestic firms, in the market of primary issues and indirectly when shares are traded in the local secondary market by pushing up equity prices and thus lowering the cost of raising capital. This encourages new equity issues. Also, these foreign direct equity purchases increase the liquidity of the local stock exchange, and enhance its efficiency, by providing high standards of regulations and information, required by foreigners, especially by institutional investors. However this type of foreign portfolio flows are highly volatile and sudden outflows may have devastating effects on the general economy of the host country by devaluating the local currency, increasing inflation and interest rates, increasing unemployment and debt burden of the local government and melting the foreign exchange reserves of the country.

1.2.1 Positive Effects of Foreign Capital Flows

As highlighted by Stulz (1997) and empirically shown by Bekaert and Harvey (1995) and Henry (2000a), the financial capital flows from industrial to developing countries are to the benefit of both sides. Investors from industrial countries are expected to gain as they earn a higher return to their capital in emerging markets. Emerging market economies, on the other hand, are also expected to gain, because the availability of these funds will reduce the cost of capital, enhance investment in longer-term projects, increase market liquidity, the long-run growth potential of the country and develop the structure of the local market by improving shareholder rights, regulatory frameworks and corporate governance strategies.

Cost of Capital

The cost of equity in an emerging market establishes the discount rate to be used in capital budgeting decisions for projects in that country. Bekaert and Harvey (1995)[13]

[13] Geert Bekaert, Campbell Harvey, Robin Lumsdaine, "Dating the Integration of World Equity Markets", Working Paper #6724, National Bureau of Economic Research, September 1998.

showed that with the integration of a market to world financial system, the cost of capital is no longer only related to the variance of the local stock index return. It is related to the covariance of local stock market return with world market returns, which is expected to be lower than the variance of the local stock returns.

If we assume that a particular emerging market is completely segmented from the global market, the expected return for a firm from that market would depend on the local price of risk and the national covariance risk. Prior to removal of capital controls, traded securities on emerging markets would be held entirely by the local investors. If removal of controls and subsequent portfolio flows result in complete global integration, the expected return would then depend on the global price of risk and the global covariance risk. We would expect the global price of risk to be lower than the local price of risk, the world market portfolio to be less volatile than the local market portfolio and the securities to be more correlated within a market than across markets. Hence, the expected return (i.e. cost of capital) of a security from segmented market would decline due to market globalization. (Errunza V, 2001)

The cost of capital will also be affected by informational asymmetries. It is reasonable to assume that domestic investors are in general better informed about their local securities than foreign investors. This informational asymmetry would lead to the observed home bias in investor's portfolios and imply a higher cost of equity capital relative to what it would be in the absence of such asymmetries. When markets globalize (or firms issue ADRs/CFs), foreign investors will demand increasing quantity and quality of information and foreign investors' interest would diminish the existing informational asymmetries and lower the cost of equity capital. Merton (1987) focuses on market segmentation arising from incomplete information and shows that the expected returns decrease with the size of the investor base due to more efficient risk sharing. Several studies have shown that increased portfolio equity flows to emerging markets led to a decline in the cost of capital in these countries (Bekaert and Harvey 1995, 2000; Stulz 1997, Henry 2000a).

Liquidity

Foreign portfolio investment increases the liquidity of domestic capital markets, and can help develop market efficiency as well. As foreign investors become actively involved in the domestic stock market, stock prices would increase, encouraging domestic firms to raise funds through initial public offerings in the stock market. Consequently, the size of the stock market will increase both in terms of total market value of stocks and in terms of the number of listed companies in the stock market.

As markets become more liquid, as they become deeper and broader, a wider range of investments can be financed. New enterprises, for example, have a greater chance of receiving start-up financing. Savers have more opportunity to invest with the assurance that they will be able to manage their portfolio, or sell their financial securities quickly if they need access to their savings. In this way, liquid markets can also make longer-term investment more attractive.

The opening of capital market would result in better functioning markets due to foreign investor influence. "This would lead to improved resource allocation by providing more reliable market signals that may be noisy in a closed, thinly traded segmented market. Therefore allocational efficiency will improve."[14]

The activities of the foreign investors may also increase the liquidity of the market. As there are more investors with sizeable investment funds in the market, it becomes easier to find buyers or sellers in the market. Furthermore, to the extent that there are economies of scale in financial intermediation, increased market liquidity leads to a decline in transaction costs attracting more domestic investors to the market.

Also as the size and liquidity of the market increase over time, the ability of a few large domestic investors to manipulate stock prices would diminish. This, in turn, will lead to an increase in public confidence in the stock market, making the stock market a more attractive investment alternative for individual investors.

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[14] Vihang Errunza (2001) Foreign Portfolio Equity Investments, Financial Liberalization, and Economic Development Review of International Economics

Information, Institutions and Regulation

One important criterion for foreign investors in choosing the destination country is the soundness and effectiveness of the regulatory system and the quality of financial intermediation. Realizing this relationship, many governments actively adopt policies to improve the capital market regulatory framework and upgrading domestic accounting and supervision standards to international levels.

Portfolio equity flows will enhance both the quantity and the quality of information available about emerging stock markets and individual stocks. The majority of foreign investors are institutional investors with large portfolios. Losses resulting from inadequate information can be quite high for these investors. Furthermore, the cost of purchasing information is quite low relative to the amounts they invest in a market. Consequently, with the flow of portfolio equity flows to an emerging market, the demand for financial information in this market is expected to increase. In response, brokerage firms devote more resources to information gathering and processing. This will increase information about the individual stocks, aggregate economy and the sector not only to foreign investors, but domestic investors as well. Due to economies of scale in the information processing, market information will become more affordable for institutional and individual domestic investors, moving the market closer to efficiency (see World Bank, 1997, chapter 3)

The foreign participants would demand timely and quality information, minority protection as well as adequate market and trading regulations. Foreign portfolio inflows will necessitates development of new institutions and services, encourage transfer of technology and training of local personnel. In a number of countries, foreign investment banks have entered into joint ventures with local interests, acquired local firms or formed wholly-owned subsidiaries to serve their home market clients.

In a deeper, broader market, investors will have greater incentives to expend resources in researching new or emerging investment opportunities. As enterprises compete for financing, they will face demands for better information, both in terms of quantity and quality. This pressure for fuller disclosure will promote transparency, which will have positive spillover effect into other economic sectors. Foreign portfolio investors, without the advantage of an insider's knowledge of the investment

opportunities, are especially likely to demand a higher level of information disclosure and accounting standards, and bring with them experience utilizing these standards and a knowledge of how they function. Reporting and registration requirements not only help prevent financial fraud but also make markets more transparent and thereby improve market efficiency in determining prices.

The regulatory reform definitely helps to increase public confidence in the market and attract more domestic investors to it. The result would be an increase in the market size and liquidity, providing more investable funds to finance longer-term projects.

Corporate Control

Foreign portfolio investments can play a disciplinary role in the markets by demanding managerial performance, monitoring of their activity and ultimately through their investment decisions. "Essentially, foreign investors can instill the concepts of shareholder value and free market culture in the local mindset."[15]

Foreign portfolio investment can help to promote development of equity markets and the shareholders' voice in corporate governance. As companies compete for financing capital the market will reward better performance, better prospects for future performance, and better corporate governance. As the market's liquidity and functionality improves, equity prices will increasingly reflect the underlying values of the firms, enhancing the more efficient allocation of capital flows.

Technology and Instrument Variety

Foreign portfolio investors may also develop emerging country equity markets by introducing more sophisticated instruments and technology for managing portfolios. For instance, foreign portfolio investments may initiate using futures, options, swaps and other hedging instruments to manage portfolio risk.

In the various ways outlined above, foreign portfolio investment can help to strengthen domestic capital markets and improve their functioning. This will lead to a

[15] Vihang Errunza (2001) Foreign Portfolio Equity Investments, Financial Liberalization, and Economic Development Review of International Economics

better allocation of capital and resources in the domestic economy, and thus a healthier economy.

1.2.2 Negative Effects of Foreign Capital Flows

Capital flows are most helpful when the magnitude of those flows is steady and stable; however, direct equity purchases by foreign investors in emerging country stock exchanges are extremely volatile.

At this point, the distinction between "flight" and "normal capital outflows" is a matter of concern. Capital flight is related to the existence of high uncertainty and risk with respect to returns on domestically held assets. It is a response to economic and political instability. Among the many factors leading to instability are financial repression, default on government obligations, threat of expropriation, lack of credibility of governments and their policies, and actual or perceived policy reversals. Lesserd and Williamson (1987,) refers to "capital flight" as capital that "runs away" or "flees" due to abnormal risks at home regardless of whether or not the flight is legal.

When equity holders perceive some instability either political or economic, they liquidate their holdings and run in order to avoid extremely high expected losses on their asset holdings. It is sometimes argued that capital outflows based on these considerations should be viewed as *abnormal*, and should therefore be distinguished from *normal* capital outflows, since normal outflows are based on considerations of portfolio diversification of residents, and/or activities of domestic commercial banks aiming at acquiring or extending foreign deposit holdings (Deppler and Williamson, 1987, p.41). As countries liberalize their current and capital accounts, outflows of capital are a normal part of portfolio diversification.

Any loss of foreign investors' confidence may result in quick liquidation of domestic security holdings, conversion of the individual investment proceeds into foreign currencies, and their repatriation. This is particularly true, when they are managed by retail investors who do not have access to the sophisticated investment methods or the extensive information and resources for research typically available to large institutional investors. (Frankel, 1997).

Alternatively, the consequences of the rush or excessive capital inflows can be devastating. Exchange rate overvaluation is often found to be an important variable in studies of capital flight and its underlying determinants. It puts upward pressure on the developing country's exchange rate and if it is not sterilized through central bank intervention then it appreciates the currency and reduces the competitiveness of the country's traded goods. An overvalued exchange rate leads to increasing expectations of depreciation in the near future. This in turn will lead to rising prices of foreign goods relative to those of domestic goods and thus to a loss of real income. To avoid welfare losses, residents hold at least part of their assets abroad. High inflation directly erodes the real value of domestic assets, stimulating residents to hold assets outside the country. Inflation rates and the exchange rate are closely connected, since high inflation may lead to increasing expectations of depreciation in the future.

High current account deficits may have a similar impact on exchange rate expectations, and may thus be a stimulus for capital flight. (Hermes, Lensink&Murinde, 2002)

Government budget deficit may also stimulate capital flight, since it raises expectations of residents with respect to future tax increases or increases in inflation tax, since it is anticipated that the government needs to repay its debt. In both cases, the real value of domestic assets is eroded, leading to capital flight. In all the cases discussed here, macroeconomic instabilities will increase risk and uncertainty of domestically held wealth and lower the returns equity holders are expecting. (Collier *et al.* 2001).

Excessive capital inflows are highly reversible in the short tem if accompanied by host country macroeconomic instabilities. Abnormal capital inflows deteriorate the macroeconomic variables of the developing countries in the short term and constitute a base of the general economy that will also increase incentives for capital flight to be reversible and portfolio capital to outflow. As a response to the capital outflow when foreign equity holders liquidate their equity shares from the local stock markets; price of equity shares will decrease and there will be an upward pressure on foreign exchange rates, foreign exchange reserves of the country will diminish and domestic exchange rate will be devalued. Domestic quantity of money will increase in the market and real

interest rates will increase and finally inflation and nominal interest rates.[16] Therefore purchasing power of residents in the host country will decrease and unemployment will rise. The large outflows of capital at the beginning of the debt crisis in the early 1980s and at the outbreak of the Asian crisis in 1997-98 support this view. The macroeconomic situation of these countries was highly unstable during these years.[17]

The excessive capital inflows can also lead to speculative booms in the price of local assets such as real estate and equity shares. Thailand experienced a boom and bubble in its real estate and stock markets before they burst during the financial crisis in 1997.

Capital flight is generally the cause of the collapse of fixed exchange rate systems as was the case for Mexico in 1994, the five crisis countries of East Asia in 1997, and Russia in 1998. The massive outflows depress the prices of real estate, equity shares and other domestic assets, and they cause a loss of bank deposits that leads to lending constraints and tight credit conditions. The result is a rise in unemployment and poverty.[18] Also, financial market disruptions in one country may inflict severe costs on other countries that played no role in the cause of the original crisis which is known as contagion effect.

Moreover, information asymmetries between domestic and foreign investors, may lead to an increase in the volatility of domestic asset prices and returns. For example, a defensive reaction by local investors to the sale of domestic securities by foreigners who in turn are responding to events overseas, may magnify the impact of foreign stock market spillover effects on the domestic market. Since local investors generally do not know why foreigners are changing their holdings of domestic securities, they may react to such changes even though the fundamentals of the domestic market have not changed. (World Bank, 1997d).

Legitimate or not, once capital flight starts there is no easy cure for it, and preventive measures often have unpleasant side effects. In fact, Capital flight is usually a symptom rather than a cause of financial crisis. Occasionally, however, rumors of a

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[16] See Fisher effect.(Irving Fisher, 1907) The fisher effect is a model where inflation is expected to be steady, and the nominal interest rate changes one-for-one with the inflation rate

[17] Hicken, Allen (2004) "The Politics of Economic Reform in Thailand".

[18] Dodd, Randall (2004)" Managing the economic impact from Foreign Capital Flows"

devaluation can trigger capital outflows. Expectations of devaluation can become self-fulfilling, as depletion of the central bank's reserves force it to devalue. In these cases capital flight becomes a source of financial instability.

1.3. MARKET EFFICIENCY INDICATORS AND MEASUREMENT TOOLS

A functioning stock market is an essential component in a competitive economy as it provides a mechanism for allocating the economy's capital stock. In an ideal situation, the stock market will steer capital in a manner that will maximize the total utility of the economy. It is obvious that prices will play a key role in a stock market, as investors' allocation decisions will depend on the prices of the traded stocks. Fama(1970) articulates the ideal of a well functioning stock market as follows:

> " In general terms, the ideal is a market in which prices provide accurate signals for resource allocation: that is a market, in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time " fully reflect" all available information."

A broad definition of Efficient Capital Market can be given as "in which a large number of buyers and sellers react through a sensitive and efficient mechanism to cause every price to reflect fully and quickly all the available information about the prospects of the companies whose securities are being traded, and any new information cannot be used to obtain abnormal returns."(Fama, 1970) By considering market efficiency, a clear distinction should be made on different types of efficiency.

Allocational efficiency refers to the effectiveness with which a market channels capital toward its most productive uses. In capital markets, companies compete for the capital supplied by investors therefore the companies with the best yield potential will get the major part of the investor's capital. If this works the stock market is efficient in its allocation of capital. The capital is then supplied to the companies with the best potential and used for production that will benefit the whole economic society (De Ridder, 2002).

To be able to be efficient in allocation of capital the market has to be efficient when evaluating information since in an efficient market no single investor should be able to make abnormal returns by analyzing available information since this information is already included in the share price.

A securities market is operationally efficient when transaction costs are at a level where market makers earn no economic profits. It is desirable that the market carries out its operations at as low a cost as possible. This may be promoted by creating as much competition between market makers and brokers as possible so that they earn only normal profits and not excessively high profits.

The market is said to be informationally efficient when its prices reflect all available information so that prices are equivalent to their economic values. Efficient Market Hypothesis is constructed based on this type of efficiency.

According to Fama (1970), there are three forms of market efficiency. The difference between them is how security prices adjust to relevant information. The first form, called weak form efficiency, tests the information from historical prices. It argues that, current stock price fully reflects any information contained in the past series of stock prices and no investor can make regular abnormal profits by using the historical stock price sequences. Secondly, the semi-strong form tests whether prices efficiently adjust to other information that is publicly available. This can be information concerning announcements of annual earnings, stock splits, and change of management. Finally, the strong form efficiency tests whether given investors or groups have monopolistic access to any information relevant for price changes. Insider information is a typical issue that is considered under the strong form of market efficiency.

The Efficient Capital Market Hypothesis assumes that the market is comprised of a large number of rational participants and that information is fully and quickly available to them.[19] A high degree of liquidity and depth are crucial elements of the market's efficiency because, without both, corporations and government agencies would face difficulties raising large amounts of long-term capital quickly and cost effectively.

The free access of all market participants to information is also a necessary condition for market efficiency. As Fama states(1970), a stock market is informationally efficient, if all the available information is directly reflected in current stock prices.

Therefore this study will focus on assumptions or elements of an efficient market in determining or measuring "market efficiency".

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[19] For assumptions of Efficient Market Hypothesis see Malkiel, 1987 "Efficient Market Hypothesis"

The literature on liquidity usually distinguishes between two types of broad measures: trade based measures (e.g. trading value, trading volume, turnover etc.); and order based measures (e.g., bid ask spreads, tightness as measured by differences in a buy and sell transactions, or more sophisticated measures such as impact costs). Researches have found that these measures are often not very correlated, and in many emerging markets order based measures may not be easy to compute due to lack of information. On the other hand, although trade based measures are easier to compute; they actually are only a proxy of transactions costs and, in many cases, measures such as turnover may not be at all correlated with transactions costs.

For instance, Jain (2002) estimates the daily bid–ask spreads over a four month interval and finds that the quotes are rough indicators of the underlying liquidity. The bid–ask quote is by far the most demonstrable indicator of overall liquidity, but closing prices often deviate from the quotes as trades are realized at different price quotes. In addition, quotes are not always available in all markets and for all time periods.

Although there is no consensus on the measurement of market liquidity in the academic literature; the size of the market, volumes and value traded, market capitalization, market concentration and degree of listing would be used in this research as factors to provide a quantitative assessment of market efficiency.

In defining the "liquid market" of finance theory, Black (1971) noted that this is a market in which a "bid-ask price is always quoted, its spread is small enough, and small trades can be immediately executed with minimal effect on price. Liquidity refers to the ability of an investor to sell an asset quickly without having to make a substantial price concession. Harris (1990) associates this definition with four interrelated dimensions: width, depth, immediacy, and resiliency. Width measures the cost per share of liquidity, depth is the number of shares that can be traded at a given price, immediacy captures how quickly a given number of shares can be traded at a given cost, and resiliency is a measure of the ability to trade at minimal price impact. Similarly Garbade (1982), Kyle (1985), and Harris (1990) identify three main dimensions of liquidity: spread, depth and resiliency.

The ability to trade large numbers of securities is often estimated with trading volume related measures (referred to as the *depth* of the market). Also, greater liquidity

will result in lower transactions costs which are often estimated by bid/ask spreads related measures. The ability to trade quickly, and at minimal price impact (referred to as *immediacy* and *resiliency* respectively), is often estimated by measures of stock price volatility or market impact costs.

Depth can be measured by (i) trading volume, defined as the total number of shares traded during the day, and (ii) trading frequency, defined as the total number of trades across all firms during the day.

Resiliency is a measure of the ability to trade at a minimal price impact. There is no clear-cut approach to measure resiliency, and one approach is to examine the speed with which the bid-ask spread and order volume are restored to normal market conditions after trades. Alternatively, to capture this dimension, measurement of how large share volume is needed to move the price by 1 percent can be used. This measure is equal to the inverse of the illiquidity ratio defined in Amihud [2002], and is calculated daily for each firm using close to close returns.

Alternatively, the literature provides various measures and proxies of liquidity to consider for estimating emerging market liquidity.

Bailey and Jagtiani (1994), Amihud, Mendelson, and Lauterbach (1997), and Berkman and Eleswarapu (1998) use "trading volume" as a liquidity proxy for price impact to explain return differentials in studies on the Thai, Israeli, and Indian stock exchanges, respectively.

Levine and Zervos(1998) consider three measures of market liquidity. The first commonly used measure is the total value of shares traded on a country's stock exchange as a share of GDP. This market capitalization ratio is generally taken as a measure of stock market size and seen as an indicator of the amount of growth in the market. This indicator is intended to measure the liquidity of a market in relation to the size of the economy. Averaged over a long time, the value of equity transactions as a share of national output is likely to vary with the ease of trading, meaning that if it is very costly or risky to invest, there will not be much investing. This liquidity measure complements the measure of stock market size since markets may be large but inactive. The assumption behind this measure is that, overall market size is positively correlated with

the ability to mobilize capital and diversify risk on an economy wide basis (Agarwal, 2001).

The second measure of liquidity is the turnover ratio. Turnover is one of the most preferred liquidity measure. It is also used in Rouwenhorst (1999), Bekaert et al. (2003), and Levine and Schmukler (2003) and spans a host of applications. Turnover ratio is calculated as the total value of shares traded (VT) divided by the average market capitalization of the market. The turnover ratio (TR) is an indicator which describes the relationship between the quality of the institutional infrastructure and the level of market activity. This measures the value of equity transactions relative to the size of the equity market. The turnover ratio also complements the measure of stock market size since markets may be large but inactive.

For the size of stock markets the work of La Porter et al. (1997, 1998) and Levine and Zervos (1998) using the stock market capitalization to GDP ratio is employed as an indicator of market development. The ratio of market capitalization to Gross Domestic Product *(MCGDP)* shows the portion of the stock market on the total national product of an economy. Turnover captures trading frequency but fails to account for the cost per trade, which varies considerably across assets. Turnover is likely to be nonlinear with respect to the bid–ask spread, leading to scaling problems with this measure. However, turnover is easy to construct and has intuitive appeal. Turnover and the bid–ask spread are hypothesized to be inversely related because larger spreads should reduce the frequency of trade.

Finally, the third measure employed by Levine and Zervos is the value-traded-ratio divided by stock price volatility. Madhavan (1992) defines volatility in terms of price variance. Low volatility is preferred as it reduces unnecessary risk borne by investors and thus enables market traders to liquidate their assets without large price movements. Glen (1994) defines volatility as the frequency and magnitude of price movements and comparing the various microstructure attributes argues that liquid and efficient markets have less volatility than illiquid and inefficient markets. Usually, higher average daily trading volumes mean that the security is more competitive, has narrower spreads and is typically less volatile. This liquidity measure underlies the fact that liquid markets should be able to handle heavy trading activity without large price fluctuations.

To measure overall stock market development, Levine and Zervos constructed an index for stock market development and economic growth. They have used above mentioned ratios to measure stock market development and constructed an index. This index equals "the average of the means-removed values of the market capitalization ratio, total value traded ratio, turnover ratio, and the IAPM pricing error measure of stock market integration. Specifically, the means-removed market capitalization ratio for country i equals the market capitalization ratio for country i minus the mean for all countries, divided by the mean for all countries."[20] Then a simple average of the means-removed market capitalization ratio, total value traded ratio, turnover ratio and IAPM integration measure were taken to obtain an index of stock market development. Similarly, to measure growth they have used real per capita growth rate averaged of the relevant period for the countries studied.

Levine and Zervos constructed this index for the following thirty three countries between years 1976-1999; Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Hong Kong, Indonesia, India, Israel, Italy, Jordan, Japan, Korea, Luxembourg, Mexico, Malaysia, Nigeria, The Netherlands, Norway, New Zealand, Pakistan, Philippines, Portugal, Singapore, Sweden, Thailand, Turkey, Taiwan, United States, Venezuela, and Zimbabwe. The goal of the empirical analysis was to assess the strength of the independent partial correlation between stock market development and economic growth. They have found significant, positive correlation between the predetermined component of stock market development and real per capita GDP growth.

Other measures of market liquidity include price volatility, the number and volume of trades and number of listed companies. Having more companies listed means having more commodities to take investors' interest in the stock market, which will eventually contribute to the liquidity of the stock exchange. Bekaert and Harvey (2000) employ the log of the number of companies as a measure of market development.

Also, Amihud (2002) attempts to generalize a liquidity measure to make it more adaptable to markets around the world. Amihud's definition is, the ratio of the daily absolute return to the dollar trading volume. This ratio more closely follows the Kyle (1985) price impact definition of liquidity, or the response of price to order flow. This

[20] Levine and Zervos,1996 "Stock Market Development and Long Run Growth"The World Bank

ratio quantifies the price/return response to a given size of trade. The advantage of this liquidity estimate is that it can be calculated for days when there is no price change, which is of particular concern in emerging markets. However, zero volume days also occur, leaving this estimator undefined. Relating the estimator to the spread, this estimator should be positively related to the bid–ask spread because smaller spreads are associated with lower price impact. Since this ratio measures the effect of price on liquidity it does not give us a base for stock market development and ignored throughout the study.

The benefits of these measures are the ease of construction and general applicability to either theory or practice. This thesis is basically constructed on the study of Levine and Zervos and their measures for stock market development.

1.4 THEORETICAL IMPLICATION: FOREIGN PORTFOLIO INVESTMENTS AND MARKET EFFICIENCY

The main purpose of this study is to clarify conceptually the process by which foreign portfolio flows in to the equity markets of emerging markets affect market efficiency.

There are many channels for portfolio capital inflows to lead to enhanced efficiency. In this study assumptions of efficient markets are taken as a measurement tool for efficiency. First of all, a starting point in this thesis was the fact that numerous theoretical arguments and empirical evidence suggest that securities market liquidity is related to informational efficiency.

Demirguc-Kunt and Levine (1996) argue that as liquidity increases and as regulatory and legal systems are established, the stock returns should be harder to predict and therefore markets would become more efficient. Similarly, Muranaga and Shimizu (1999) argue that market liquidity is an important factor that impacts market efficiency. Their model shows that an increase in liquidity is followed by a decline in market price uncertainties and by a decline in liquidity premium such as bid-ask spreads and market impact, thereby improving market efficiency. Brown and Zhang (1997) discuss the impact of liquidity on informational efficiency. And Sonali Jain-Chandra(2002) empirically indicated the effect of liquidity after market liberalization in sixteen countries

on market efficiency and concluded that stock market liberalizations render emerging equity markets more liquid and efficient. Yeh and Chen (2001) concluded that an important driving force which makes market efficient is market diversity. The increase of market size contributes to the market efficiency by means of introducing greater diversity into the market.

Economic theory suggests that speculative activity (by frequency of trading) enhances the informational and allocational role of asset markets thereby making markets more efficient. (Grossman, (1995), Grossman and Stiglitz (1985)).

Existing literature allows us to identify determinants of market efficiency and investigate the relationship between market efficiency determinants and foreign portfolio investments. As it is mentioned, market liquidity is an important factor which affects market efficiency. A liquid market can be defined as a market where a large volume of trades can be immediately executed with minimum effect on price. Liquid markets are necessary to give investors the confidence to save and vest their wealth in financial assets knowing that, in a liquid market, non-cash assets can be converted into cash assets (and vice-versa) at minimal cost. [21]

Given that market liquidity is an indicator which represents market depth and shows the absorption power of risk premium on trading execution, the condition of market liquidity can be considered as one of the factors affecting the price discovery function. When market efficiency is considered in the context of a market's price discovery function and the information content of price, market liquidity can be regarded as a factor which affects market price uncertainties in the sense that market prices do not reveal all available information or in the sense that market price will temporarily diverge from the market clearing equilibrium price or price discovery function, and will, as a result, affect market efficiency. (Muranaga and Shimuzu,1999) Liquidity will assure an enlarged investor base and no single individual will be capable of manipulating stock prices thereby increasing investor confidence to the market. Also maintenance of sufficient liquidity under normal conditions will autonomously improve market stability

[21] See Holl, T., and R. Winn, in Comparability of different measures of liquidity on the Australian Stock Exchange, SIRCA, undated, available at www.sirca.org.au.

by expanding the market boundaries and improving the participants' confidence in market sustainability.

In the following part, several components of liquidity and the mechanism how they affect market efficiency are discussed.

It is certain that with foreign participation in domestic equity markets, investor base will enlarge and this will most likely be accompanied by an increase in the amount of research done on individual stocks and market-wide conditions in these equity markets. The reason behind the fact that, foreign investors will typically require transparency and improved disclosure rules and these in turn will improve the quality of information reaching the market and therefore lead to increased efficiency of the allocation of capital. As more foreign investors enter the market, pressure will be applied to upgrade trading systems and modify legal frameworks to support a greater variety of financial instruments. With foreign participation, local authorities are forced to harmonize local financial market legislation with the international level and realize a set of regulations in order to attain and sustain development.

The fact that, shareholders and investors of a company need to have regular access to reliable and accurate information about the management and legal and financial status of the company necessitates transparency of information and public disclosure requirements.

The aim of the principle on public disclosure and transparency is to provide shareholders and investors accurate, complete, comprehensible and easy to analyze information which is also accessible at a low cost and in a timely manner. If investors have very little information on which to base their portfolio decisions, they will require a higher return on investment and hence impose a risk premium before investing in a firm.

Securities regulation determines the minimum amount of information that firms must disclose to investors and the general public. When more information is available and the market is transparent, investors are better able to estimate future benefits from their investments. Consequently, the cost of capital should be lower for firms in countries with tighter securities regulation.

Transparency means that market participants have the information they need to allocate their resources within the market. Market transparency is generally regarded as

playing a central role in promoting the fairness and the efficiency of markets. By providing protections for investors, transparency encourages greater participation in the securities markets, and thereby enhances the liquidity of those markets. This increase in liquidity, in turn, increases market efficiency. Full and fair enterprise related disclosure increases investor confidence in the capital markets, thereby enhancing market liquidity and efficiency.

Demirgüç-Kunt and Levine (1996) observed that economies with strong information disclosure laws, internationally accepted accounting standards and unrestricted international capital flows tend to have larger and more liquid markets. As a factor in traders' strategic decisions, transparency can influence their willingness to participate in the trading process. The availability of timely price information promotes fair and efficient pricing by aiding investors and dealers in evaluating the current bid or ask price. Information that is timely, accurate, and easily accessible - which the regulators can ensure - allows investors to make more informed decisions. In addition, the knowledge that all market participants are subject to the same reporting rules and possess the same price information; creates certainty, fosters investor confidence and promotes participation in the markets. Transparency increases investor confidence and is an essential component of efficient and fair markets. It reduces transaction costs, improves the pricing mechanism, promotes investor confidence, and lowers the cost of accessing capital.

The corporate governance framework should ensure timely and accurate disclosure on all material matters, including financial situation, performance, ownership and governance of the company. Disclosure helps public understanding of a company's activities, policies and performance with regard to environmental and ethical standards, as well as its relationship with the communities where the company operates. Also, disclosure and transparency, as well as proper auditing, serves as a deterrent to fraud and corruption, allowing firms to compete on the basis of their best offerings and to differentiate themselves from firms who do not practice good governance.

As foreign investors become actively involved in the domestic stock market, stock prices would increase, encouraging domestic firms to raise funds through initial public offerings in the stock market. Consequently, the size of the stock market will increase

both in terms of total market value of stocks and in terms of the number of listed companies in the stock market. Since the number of listed companies increase, stock market will further grow and attract more investors to the market. As Samuelson(1965) stated "*in competitive markets there is a buyer for every seller. If one could be sure that a price would rise, it would have already risen.*" The theory of efficient capital markets can be considered as just the theory of perfectly competitive equilibrium model applied to asset markets. Since there are more investors with sizeable investment funds in the market, it becomes easier to find buyers or sellers in the market and therefore market liquidity will increase. Also, just like the "price taker" principle of perfectly competitive markets, stock prices only changes depending on the demand of investors and since there are many buyers, the chance of a single market participant to manipulate stock prices will decrease.

One of the basic argument of efficient market hypothesis is that; stock prices should not be predictable. The Efficient Market Hypothesis, introduced by Fama, states that in an efficient market there are a large number of "rational profit maximizers" that actively compete, each trying to predict future market values. The interaction of these participants causes the current price to fully reflect the expectation of the future price of the security. In essence, the more efficient a market, the more unpredictable future pricing will be, with the expected value of future prices equal to the current price. Therefore enlarged investor base will assure prices are not predictable.

Furthermore, to the extent that there are economies of scale in financial intermediation, increased market liquidity leads to a decline in transaction costs attracting more domestic investors to the market. Transaction costs are dependent on the volume and frequency of transactions because economies of scale will reduce transaction costs for frequent exchanges. As the size and liquidity of the market increase over time, the ability of a few large investors to manipulate stock prices would diminish.

Also decline in transaction costs lead to increased participation to the markets from uninformed investors and increase liquidity. It has been showed theoretically that this increase in participation can adversely affect market efficiency. (M. Hitt and Gu(2001)). The term transaction costs consist of two main components: explicit and implicit transaction costs. Explicit transaction costs are incurred with the order-

processing and trade settlement by brokers, banks and exchanges. They take the form of fees, commissions or taxes and are directly charged to the market participant. Implicit costs are much harder to quantify, and there are differences of opinion about their existence and relative significance. Implicit transaction costs can be defined as the difference between actual buy or sell price and theoretical market price. There are three main suggested components of the implicit costs: bid ask spread, price impact and opportunity costs.[22]

In securities trading, liquidity and implicit transaction costs are closely related. The more liquid a marketplace, the lower the implicit transaction costs since the better the stock liquidity, the less prices will have to move in order to be able to execute an order.

[22] Odeegaard A& Naes R (2000) "Equity Trading by Institutional Investors"Discussion Paper

2. THE HISTORY OF FOREIGN PORTFOLIO INFLOWS AND MARKET EFFICIENCY IN TURKEY

Turkey has "emerging" financial markets. (Arin, 1998). According to the International Finance Corporation (IFC), a subsidiary of the World Bank, all markets in developing countries are treated as emerging. Countries with per capita income above $10,000 have frequently been classified as developed.[23]

According to the World Bank, the five biggest emerging markets are China, India, Indonesia, Brazil and Russia. Other countries that are also considered as emerging markets include Mexico, Argentina, South Africa, Poland, Turkey, and South Korea. These countries are identified as having made a critical transition from a developing country to an emerging market. Each of them is important as an individual market and the combined effect of the group as a whole will change the face of global economics and politics. In this chapter Turkish economic history and the patterns of portfolio equity flows will be discussed.

2.1. HISTORY OF TURKISH ECONOMY AND FINANCING OF CURRENT ACCOUNT DEFICITS

The timing and the process of financial liberalization and opening up of foreign trade and capital markets started after Turkey fell into foreign debt payment problems in the late 1970's. In the early 1980s Turkey launched a structural change and liberalization program to prevent the recession of the late 1970s.

By the late 1970s, Turkish authorities had failed to take sufficient measures to adjust to the effects of the sharp increase in world oil prices in 1973-74 and had financed the resulting deficits with short-term loans from foreign lenders. By 1979 inflation had reached triple-digit levels, unemployment had risen to about 15 percent, industry was using only half of its capacity, and the government was unable to pay even the interest on foreign loans.[24] Accordingly, Turkey has moved from an inward oriented import substitution trade regime to export oriented industrialization. The program was supported by the multilateral organizations including the IMF, the OECD and the World Bank.

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[23] The World Bank's World Development Indicators Database (2004)
[24] Helen Chapin Metz, ed. *Turkey: A Country Study*. Washington: GPO for the Library of Congress, 1995.

The first concern of the program was to reduce the rate of inflation while not causing a major slow down in the growth of output. The second aim was to promote exports through continuous adjustments of the exchange rate and export incentives, and subsequently, to liberalize imports. The third aim was financial liberalization, which, it was thought, would increase private savings and investments. The fourth, longer term, aim was to liberalize foreign capital movements and take measures towards making the Turkish Lira convertible. A final major aim of the program was to reduce the role of the public sector in the economy by both reducing the size of the central government and by privatization of the public enterprises. [25]

To promote these strategies, some of the actions taken include : devaluation of the Turkish lira and institution of flexible exchange rates, removal of quantitative restrictions on a large proportion of import items and by reductions in tariff rates(1983), maintenance of positive real interest rates and tight control of the money supply and credit, elimination of most subsidies and the freeing of prices charged by state enterprises, removal of restrictions on interest rates, establishment of short-term money market, reform of the tax system, encouragement of foreign investment and allowance for Central Bank to engage in open market operations.

As a result, real exchange rate depreciation and export promoting strategies led to strong export growth. The liberalization program overcame the balance of payments crisis, reestablished Turkey's ability to borrow in international capital markets, and led to renewed economic growth.

The services account of the current account accumulated a growing surplus during the period 1979-1985. Expanding tourist receipts and pipeline fees from Iraq were the main reasons for this improvement. Stabilizing the current account helped restore creditworthiness on international capital markets. Turkey's economy grew by 7.5% between 1981 and 1985.[26] However, since 1986, the achievements of the stabilization program have been overshadowed by high inflation rising from gradually increasing public sector deficit.

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[25] Selçuk F (1998) "A Brief Account of the Turkish Economy :1987-1996"edited by L. Rittenberg,pp.17-33
[26] See state Institute of Statistics

The rapid rise of growth and the improvement in the balance of payments were insufficient to overcome unemployment and inflation, which remained serious problems. After declining sharply in the early 1980's, inflation followed an upward trend and threatened the sustained stability in the economy and had a negative impact on growth of financial markets. Inflation fell to about 25 percent in the 1981-82 period, but it climbed again, to more than 30 percent in 1983 and more than 40 percent in 1984. (Refer to Table 1) Although inflation eased somewhat in 1985 and 1986, it remained one of the primary problems facing economic policy makers.

Basic elements of the disinflation program in the late 1980s were in forms of nominal anchoring and monetary tightening without any serious effort to reduce the public sector borrowing requirement. This policy combination necessitated a higher interest rate on domestic assets and a lower depreciation rate in order to secure short-term capital inflows.[27]

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
inflation	31,2	48,4	45	34,6	38,9	75,4	63,3	60,3	66	70,1	66	106,3
PSBR	4,9	5,4	3,6	3,7	6,1	4,8	5,3	7,4	10,2	10,6	12	7,9

Table 1 Source : TCMB, PSBR:%GNP

Rising inflation together with growing public sector borrowing requirement brought a serious pressure on the financial sector. Interest rates rose while borrowing maturity became shorter. In order to ease pressure on domestic resources, both private and public sectors preferred external borrowing which enabled governments to sustain domestic demand led growth at the expense of rising inflation, widening deficit in the balance of payments and deteriorating further macroeconomic imbalances. Meanwhile, governments also borrowed from the Central Bank to finance public sector deficit.

After the financial liberalization in 1989, with the transition to the convertibility of the Turkish lira, huge amounts of short term foreign capital poured into the country, since the interest rates were higher than in advanced capitalist countries. Now, it was easier for Turkish corporations to borrow abroad and for foreign capital to benefit from arbitrage opportunities arising from interest rate differentials. "Decree No. 32 passed in August 1989, removed all restrictions on overseas institutional and individual investment in securities listed on the Istanbul Stock Exchange. Hence, the Turkish stock and bond

[27] Ahmet Ertugrul and Faruk Selcuk (2001). "A Brief account of the Turkish economy: 1980-2000"

markets are open to foreign investors, without any restrictions on the repatriation of capital and profits. Turkish residents were allowed to invest in foreign securities and to hold foreign currency accounts abroad while non-residents were permitted to invest freely in Turkish financial markets." [28]Turkish Lira became convertible with no restrictions on international capital flow. The real appreciation of the Turkish Lira from 1989 onwards was partly a consequence of the short-term capital inflows.

The inflow of hot money led to an overvaluation of the Turkish lira. The appreciation of the currency and also the tariff reductions in 1989 has led to an import boom and caused current account deficits.

Year	Trade balance(million usd)	Current account balance(million usd)
1990	-9,6	-2,6
1991	-7,3	0,3
1992	-8,2	-0,9
1993	-14,2	-6,4
1994	-4,2	2,7
1995	-13,2	-2,3
1996	-10,3	-2,4
1997	-15,04	-2,6
1998	-14,05	2,0
1999	-10,18	-1,3
2000	-22	-9,9
2001	-3,8	3,4
2002	-7,3	-1,5
2003	-14	-8,03
2004	-23,9	-15,6
2005	-33	-23,1
2006	-37,4	-30

Table 2. Source: Balance of payment summaries were taken from TCMB.

Financial liberalization after 1989 had an adverse effect on the external balance situation of the economy. Because of the slow down in depreciation of the currency, the Turkish lira appreciated in real terms of 22 percent in 1989 and continued to appreciate in 1990 at a slower rate. As a result, the rate of increase in the total exports slowed down and that of total imports jumped up. The external deficit to GDP ratio increased to 2 percent in 1989 and to 4 percent in 1990. Although there was a slight decrease in 1991 and 1992, the external deficit reached to approximately 6 percent of the GDP in 1993.(Ertuğrul and Selçuk,2001)

[28] See www.imkb.gov.tr

Public sector borrowing requirement of Turkey rose steadily between 1988 and 1993. The gap between public sector revenue and expenditure was widening. The reasons for the growth in public expenditures were increases in generous agricultural support policies, worsening performance of the State Owned Economic Enterprises, the increased cost of military operations in the southeastern region of the country and increased interest payments after 1992.

The central government's moves in 1992 and 1993 to grant large salary increases to civil servants and to increase transfers to state enterprises enlarged the public-sector borrowing requirement to a record 17 percent of GDP in 1993. (Mertz, 1995) This high government expenditure increased domestic demand and in turn, inflation rates went up, with the annual rate peaking at 73 percent in mid1993. [29]The resulting rise in the real exchange rate translated into increased imports and slowed the growth of exports. The trade deficit rose in 1993 to US$14 billion, while the current account deficit reached US$6.3 billion, or 5.3 percent of GDP. (Refer to Table 2)

GNP GROWTH RATE (%)									
1987	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**
9,8	1,5	1,6	9,4	0,3	6,4	8,1	-6,1	8	7,1
1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
8,3	3,9	-6,4	6,1	-9,4	7,9	5,9	9,9	7,6	3

Table 3 Source: GNP growth rates are taken from the website of Undersecretariat of Foreign Trade.

Turkey was able to realize an average growth rate of 6% during the period of 1985-1992. 1992 was the year in which economic activity recovered strongly from its stagnant position in the previous years, which was largely the result of the Gulf crisis. The UN embargo on Iraq, had required the ending of oil exports through the Ceyhan pipelines, resulting in the loss of the pipeline fees. In addition, the economy may have lost as much as US$3 billion in trade with Iraq. But, Saudi Arabia, Kuwait, and the

[29] Wikipedia, "Economic History of Turkey"

United Arab Emirates (UAE) moved to compensate Turkey for these losses, and by 1992 the economy again began to grow rapidly.[30]

However, uncertainties and unfavorable external environment related to the Gulf War led to a sharp contraction in economic activity. The war led to uncertainties and minor panics in the financial markets. This resulted in an increase of interest rates, shortening of debt maturity and put a limit on foreign financing.

In spite of the inflow of foreign capital, a large proportion of which was short term and attracted by the high positive margin between the interest rate and exchange rate depreciation, which started at significant rates in the late 1980s, accelerated in the 1990s. Foreign exchange deposits of the Turkish nationals grew faster than their Turkish Lira deposits.

In January 1994, international credit rating agencies downgraded Turkey's debt to below investment grade. Beginning from November 1993, there was a rush to buy foreign exchange. To calm the panic and keep the exchange rate within certain limits, the Central Bank intervened in the foreign exchange market by selling its foreign exchange reserves, and raised the official dollar exchange rate by 13.6% in one day in mid-January 1994. Demand for foreign exchange continued and from November 1993 to end-March 1994 the sale of foreign exchange reserves amounted to almost $ 7 billion, leaving the reserves at about $ 3.3 billion.[31]

The crisis severely hit the banking system due to their short foreign currency position and heavy investment in government securities. During the crisis, there was a massive withdrawal of deposits from banks due to panic created by a sharp depreciation of TL and an increase in interest rates. The Government stopped three small sized banks from banking activities and introduced full guaranty to all savings deposit holders.

After local elections were held at the end of March 1994, a stabilization program was announced on April 5, 1994 together with the signing of a stand-by agreement with the IMF. The package of measures announced by the government on April 5, was also submitted to the IMF as part of its request for a US$740 million standby facility

[30] Undersecreteriat of The Prime Ministry for Foreign Trade Export Promotion Center,"The Turkish Economy"

[31] The Library of Congress Country Studies; CIA World Factbook, "Turkey : Economic Performance in the early 1990s"

beginning in July 1994. Measures included a sharp increase in prices of 70 to 100 percent on SEE goods, decreases in budgetary expenditures, a commitment to raise taxes, and a pledge to accelerate privatization of state economic enterprises (SEEs).After the stabilization program, IMF approved a stand-by of US$ 742 million, and strongly urged the rapid implementation of the structural reform measures.[32]

However, April 5 program and the stand-by agreement came to an end in 1995. During the following two years, there was no serious attempt to stabilize the economy and to reduce inflation.

After an output loss of 6,1 % in 1994, output recovery was rapid. The economy grew 7,5 and 8 % in 1995 and 1996. (Refer to Table 3) By 1995, the GDP recovered however; as of mid-1997 the marks of the crisis are still being felt, with annual inflation about a level of 85-90% (the highest in the OECD); the trade deficit reaching US$ 20 billion; and the public sector borrowing requirement (PSBR) at 7% of the GDP.[33]

In July 1998, the Turkish government started another disinflation program under the guidance of an IMF Staff Monitored Program. The program achieved some improvements concerning the inflation rate and fiscal imbalances but it could not relieve the pressures on the interest rates. The Russian crisis in August 1998, the general elections in April 1999 and two devastating earthquakes in August and October 1999 led to a deterioration of the fiscal balance of the public sector.

The growth rate was a large negative in 1999; -5.0% in terms of GDP and -6.4% in terms of GNP.(Refer to Table 3) The combination of this negative growth with an inflation of over 60% led to the announcement of yet another stabilization program, better known as "the disinflation program of 2000", at the end of 1999.

Turkey greeting the year 2000 with the introduction of a new economic stabilization program had three aims: fiscal discipline encompassing both the central government budget and the rest of the public sector, determination of exchange rates under a pre-announced crawling peg arrangement, implementation of structural reforms and, especially an acceleration in privatization. The fundamental aim of this framework was the reduction of inflation and attainment of sustainable economic growth.

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[32] Celasun, O.(1998) "The 1994 Currency Crisis in Turkey"
[33] Köse B. &Kibritçioğlu B(1998) "A Leading Indicators Approach to Predictability of Currency Crisis"

The positive market sentiment greeting the announcement of the new economic program led to a reduction in the cost of borrowing to the Treasury, from an average of 109% per annum at the end of 1999 to 38% per annum by January 2000. (Refer to Table 4) Despite the fact that the program achieved some remarkable results in a short period of time, the Turkish financial system experienced a short-lived crisis at the end of year 2000. During the second half of the year 2000, the slow down in economic reforms in general and the opposition to the privatization of certain state enterprises from inside the government increased the suspicion in the market that the program was about to end.

Years	Average interest rate
1992	86,49
1993	86,7
1994	158,1
1995	123,2
1996	134,2
1997	123,3
1998	115,6
1999	109,0
2000	38,3
2001	99,9
2002	63,5
2003	44,1
2004	24,9
2005	16,2
2006	18,0

Table 4 Source:www.treasury.gov.tr

The first seeds of the crisis were the rising trade and current account deficits due to the use of the exchange rate as a nominal anchor. The current account deficit which was 1.3$ billions in 1999, jumped to 9.8$ billions in 2000. (Refer to Table 2)The deficit in the current account, which reached to 4.8% as a ratio to the gross national product, is one of the clearest indicators of the crisis.[34]

The stabilization program implemented like in other emerging markets, used the exchange rate as a credible anchor to target inflation. This lead to appreciation of the currency and forced the economy to rely on capital inflows attracted by arbitrage opportunities to finance growing external deficits. Accordingly, the inflation target was anchored to a preannounced crawling peg set in terms of a basket made up of the dollar

[34] Hristov, S. (2001) " The Crisis in Turkey" , *Institute for Regional and International Studies*. pp.2-18

and the euro, with a greater weight accorded to the former. The exchange rate path was announced for the period 1 January 2000 and 31 December 2000. The value of the basket in lira was set to increase by 20 per cent for the year 2000 as a whole at the target rate of inflation.[35]

There was a fine balance between interest rates and capital inflows throughout the first three quarters of 2000. While capital inflows helped to lower interest rates through the policy of nonsterilization, the latter were nevertheless high enough to create considerable international arbitrage opportunities and attract capital inflows. Also, the interest rate in dollar terms on investment in government paper was close to 16 per cent for the first 11 months of the year. (Refer to Table 4) Consequently, until the crisis broke out in November, private capital inflows and large-scale foreign borrowing by the Treasury were more than sufficient to meet the growing current-account deficit, resulting in a large increase in international reserves which reached some $24 billion, exceeding the year end target of the program. (Boratav and Akyüz,2002)

"Strong support given by the Bretton Woods Institutions to the stabilization program and expectations of an IMF aid in case of trouble, appear to have played an important role in encouraging lending and investment by non-residents" (Boratav 2002). By contrast, there was a net acquisition of assets abroad by residents, suggesting that despite attractive arbitrage opportunities, they were reluctant to concentrate their asset holdings in the country. Similarly, foreign exchange deposits held by residents in domestic banks rose both in absolute terms and as a share in total commercial deposits. While interest rates on foreign exchange deposits remained broadly unchanged at double digit levels, there was a sharp drop in rates on lira deposits. Although the difference was much greater than the preannounced rate of depreciation of the currency, the Turkish savers were reluctant to undo their foreign exchange deposits and shift to lira and, unlike financial intermediaries, to take the consequent exchange rate risk.

Together with the appreciation of the currency and a rising oil import bill, imports increased by 35 percent in 2000, while export growth remained at 7 percent. The trade deficit doubled to more than $20 billion (Refer to Table 2) pushing the current-account

[35] See www.imf.org

deficit to an unprecedented 5 percent of GDP, about three times the level targeted in the program.

The external imbalance had risen beyond expectations, and the rise in international reserves, strong as it was, would not have been sufficient to sustain external payments in the event of an interruption of capital inflows. In November 2000 withdrawal of capital by nonresidents is estimated to have exceeded $5.2 billion, which was fully reflected in the depletion of international reserves in the last two weeks of November.[36]

Banks moved to close their open foreign exchange positions towards the end of October for regulatory and balance sheet purposes. This move created a liquidity squeeze and caused interest rates to rise. As a result, a severe banking crisis hit the economy in November 2000, a year after the start of the program.

Following the crisis, the IMF support and new commitments by the government appeared to stabilize the currency and financial markets at the end of 2000 in order to stop capital outflows and attain official reserves of the government. The government undertook fresh commitments, including further cuts in government expenditures and tax increases, elimination of agricultural support policies, liberalization of key goods and services markets, financial sector restructuring and privatization. Government also extended guarantees for foreign creditors as well as for all depositors of local banks in order to help restore confidence in the banking system.

Although an IMF-led emergency package succeeded in normalizing the situation for a while, Turkish Lira came under heavy attack in February 2001, which turned into the "most serious financial and economic crisis" Turkey has experienced in its post-war history. The very fact that the devaluation rate was limited to 15-20 percent per year under the stabilization program encouraged banks to borrow heavily from abroad.[37] Such borrowing was mostly short term, which created a serious maturity mismatch between the assets and the liabilities of the banking sector. In addition, the composition of capital inflows was unfavorable. Short term portfolio investments which made up most of the inflows, were easily reversible. Also a slowdown in the reforms specified under the

[36] Ekinci, N.K (2002) " Anatomy of the Recent Crisis in Turkey". *Journal of Economic Cooperation*. Vol.23, No.1
[37] F. Gulcin Ozkan (2005) "Currency and Financial Crises in Turkey 2000 -2001"

stabilization program, together with political uncertainty has also contributed to the ongoing difficulties.

A public disagreement between the Prime Minister and the President was followed by a massive attack on the Turkish lira on the 21st of February 2001. The authorities decided to float the currency the following day with 28 per cent loss of value against the dollar.(Hristov, 2001) In the subsequent two months, the Turkish lira lost almost half of its value. The resulting output loss was substantial and the economy contracted by over nine per cent in 2001, which was the nation's most severe recession since World War II.

The rapid rise in interest rates led to a sharp decline in transaction volume in the secondary market for Treasury securities. Foreign parties accelerated their exit from the Turkish market by selling their securities holdings. This trend put further upward pressure on interest rates. The rise in interest rates and the acceleration of this trend led to the dispersal of leverage created by banks abroad. Foreign banks who were essentially partners with the Turkish banks in these funds began to liquidate their positions. Under these circumstances, funding of the Treasury securities had to be borne solely by local banks. Interest rates rose even further.

As the financial turmoil deepened, the economic team was changed and an agreement was reached with the IMF in May 2001 on a new program supported by an additional stand-by credit of $8 billion, bringing the total IMF credit extended since December 1999 to $19 billion. (Boratav and Akyüz, 2002)

The rapid crisis development forced the government to undertake measures for introducing free floating regime for the Turkish lira on February 22, 2001 aiming to overcome the continuing financial crisis. The decision led to devaluation of the national currency by approximately 40 %.(Ekinci, 2002)

In addition to structural policies focusing on banking, fiscal transparency and privatization, the program set new macroeconomic targets for the rest of the year as well as for 2002-2003. Compared to the original targets set for 2001 in the December 1999 program, growth and current account deficit targets were significantly lowered while inflation and public debt targets were raised. These projections for the year as a whole

were based on the assumption that the economy would stabilize and growth would resume in the second half of the year with a decline in inflation and in export earnings. As the part of a new structuring program, major public banks would be merged and privatized in three years, state subsidies to farming would be stopped, public expenditure would be cut by nine per cent, public-sector salaries would be frozen, and state-owned telecommunication, airlines, petroleum, steel, tobacco and spirits, sugar, natural gas and electricity distribution industries would be privatized and opened to global markets.

The move to floating under conditions of fiscal imbalances, high inflation and financial fragility has presented serious policy dilemmas. Under the previous regime of crawling peg, while interest rates were allowed to move in response to capital flows, the peg was expected to bring down inflation as well as nominal and real interest rates, and to facilitate fiscal adjustment. The move to floating under distress effectively removed any control policy may have had over exchange rates, interest rates and inflation. Although the currency was left to "market forces" in order to free monetary policy and interest rates from defending a particular exchange rate, the erosion of confidence in the lira and capital outflows tended to reduce liquidity and to push up the interest rates. The latter development aggravated the fiscal problem and resulted in further loss of confidence.

Up to the first 4 months of 2006, a successful process was seen in policies for decreasing inflation. Therefore the positive process started in 2001-2002 years continued until the first 4 months of 2006 and the credibility of the central bank had an increasing trend. However, due to the pressure of the increase in oil and other raw material prices in international markets, inflation level increased significantly as of April 2006. While annual inflation in end-2005 was about 7,7%, this ratio reached at 9,9% level (on annual basis) in 2006.[38]

The current-account deficit was between 2.5% and 3% of gross national product (GNP) in 1996 and 1997, a sustainable level for a country like Turkey. The current-account balance improved in 1998, moving to a surplus of 0.9% of GNP. The improvement was due mainly to the decline in the trade deficit and a rise in workers' remittances. The 2000 report noted that the current-account deficit had risen to nearly 6% of GDP, but the situation improved markedly after the currency depreciation. Current-

[38] For Inflation rates see website of State Institute of Statistics www.die.gov.tr

account imbalances have remained limited, reaching a deficit of 5.3% of GDP when the economy was growing strongly in 2000 and a surplus of 2.3% of GDP at the time of the 2001 recession. Current account balance, which have surplus in 2001 after the economic crises in November 2000 and February 2001, started a deficit period from 2002 and the deficits continue in increasing rates. The increase in current account deficit continuing since mid-2002 is related to stable macroeconomic environment established in economy and accordingly, the appreciation of Turkish Lira due to international capital inflow which became attractive according to that condition. In high global liquidity environment, local currency appreciated as it does in many developing countries, and this situation accelerated current account deficit through increasing import demand. An upturn in imports led to a small current-account deficit of 0.8% of GDP in 2002. Confirming this trend, the current-account deficit showed a moderate increase, from 0.9% in 2002 to 2.8% in 2003. The 2004 report stated that a marked deterioration in the external balance had taken place during the first half of 2004. The 2005 report noted that the trade deficit had increased in 2004 from 6.8 billion to 19.2 billion (8% of GDP). By May 2005 the trade balance gap had grown by 27.3%. The current-account deficit stood at about 5% of GDP in 2004, rising to 6% of GDP in the first half of 2005.

While the intensity of portfolio investments in financing current account deficit is obviously seen, in 2005 the share of direct investments in financing current account deficit increased as a result of privatization incomes, merger and transfer of the companies, investments in real estate markets and increasing foreign investor interest to Turkish banking sector.

However the changing current account deficit financing composition could not prevent our country to be the most affected country from the international financial fluctuation process in April 2006 period. In fact while the risk spreads in the bond markets in our country increased in the said period by 48% compared to the beginning of 2006, the loss in the stock markets is approximately 25%.

2.2. STOCK MARKETS' ROLE IN THE DYNAMICS OF THE CURRENT ACCOUNT

Stock markets play an important role in the dynamics of the balance of payment since foreign portfolio flows in the form of share purchases of foreign investors in the local equity market fund current account imbalances.

2.2.1 THE DYNAMICS OF CURRENT ACCOUNT BALANCE AND BALANCE OF PAYMENT EQUATION

The balance of payments is a summary of all economic transactions between a country and all other countries for a specific time period, usually a year. The balance of payments account reflects all payments and liabilities to foreigners and all payments and obligations received from foreigners.[39]

A typical balance of payments contains three major sub balances: the current account; the capital and financial account and official reserves account.

The current account measures the inflows and outflows of capital for the following purposes: export and import of goods and services, transfers of capital by tourists, and foreign governments using the host country's currency to operate a presence in the host country. The capital account measures the value of the flow of capital for "capital transactions." A capital transaction involves the sale or purchase of real property, buildings, stocks, and bonds. These assets are divided into categories such as Foreign Direct Investment (FDI), Portfolio Investment (which includes trade in stocks and bonds), and Other Investment (which includes transactions in currency and bank deposits).[40]

Current account deficits are often balanced by capital account surpluses since capital accounts are the mirror image of the current account. Any international movement in goods and services or income, recorded by the current account, must be accompanied by some form of payment which is typically recorded in the capital account.

As the third component, official reserve account, reflects changes in the government's holdings of foreign currency or loans to foreign governments. The transactions included in

[39] See Wikipedia for definition, 2007

[40] Heakal, Reem (2003) "Understanding the Capital and Financial Accounts in the Balance of Payments" *http://www.investopedia.com/articles/03/070203.asp*

this account are mainly the central bank's purchase and sales of foreign exchange in the foreign exchange market.

The net of the three accounts is the "balance of payment which leads to the basic BOP identity as follows:

$BP = CA + CF - OR = 0$

It should be noted, however, that in practice the BOP is never exactly balanced. That is, the sum of the capital and financial account does not exactly match the current account imbalance. As a result the BOP includes one more account called errors and omissions. This account simply balances the BOP. One of the main reasons for this statistical discrepancy is that data for the BOP entries come from independent sources that may use different coverage, accuracy, and timing. As a result, implementation of the double-entry recording system is not perfect.

Current account imbalances require financing. The level of current account imbalance directly reflects the difference between national income and national spending. In the absence of capital flows, a current account deficit is only possible by running down official foreign reserves or foreign borrowing by the banking system. In the absence of reserves or foreign borrowing, a balance in the current account can only be achieved through adjustments of domestic macroeconomic variables.

The main components of the balance payments in general and the financial account in particular are provided below in Table 5. It shows the main components of the balance of payments. The two main groups of accounts are the current account, and the capital and financial account. The former covers all the transactions different from financial ones that occur between resident and non-resident entities and acquisition/disposal of non-produced, non-financial assets. The financial account has the following components: direct investment, portfolio investment, financial derivatives, other investment, and reserve assets.

Direct investment covers all the transactions between direct investors and direct investment enterprises. Portfolio investments cover all the transactions in equity and debt securities and can be classified as bonds and notes, money market instruments and financial derivatives that generate financial claims and liabilities. Financial derivatives

cover financial instruments that are linked to other financial instruments, indicators or commodities. Other investments are classified as short and long-term trade credits, loans, currency and deposits, and other account receivables and payables. Finally, the reserve assets consist of those assets that are available for use in meeting balance of payments needs. Such items are usually monetary gold, SDRs, the reserve position in the Fund, foreign exchange assets and others. (Rawland, 2000)

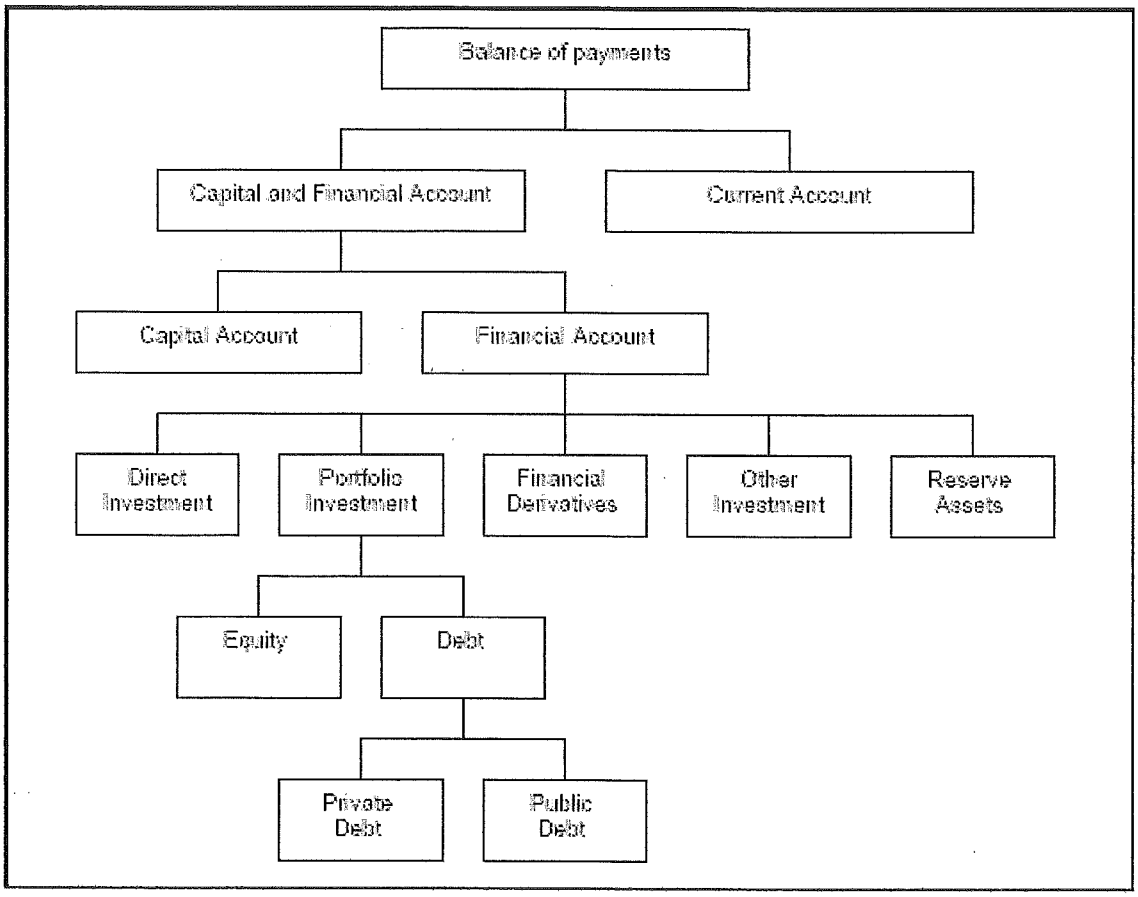

Table 5 Source: Rawland Peter, 2000 " Determinants of Investment Flows into Emerging Markets" *http://www.banrep.gov.co/docum/ftp/borra313.pdf*

2.2.2 THE ROLE OF FOREIGN PORTFOLIOS ON CURRENT ACCOUNT BALANCE

In the period following the year 1980, there has been a general trend in the world economy towards liberalization, in terms of both trade and finance. There has been an increase in the number of countries which experienced transitions to being market oriented economies that liberalized internal and external markets.

Turkey liberalized its capital account in 1989, taking an important step in integrating its economy with the rest of the world. Since then capital inflows increased significantly and the financial system became increasingly linked with external markets. Although Turkish macroeconomic environment was unfavorable, capital inflows to Turkey increased steadily after 1990, with net capital inflows reaching more than four percent of GNP in 1996 and 1997.(Celasun, Denizer, and He, 2000)

As explained in section 1.1, there are motives of global funds to enter into emerging markets. Following the financial liberalization, Turkey attracted capital inflows mainly due to high real interest rates and high growth potential.

Year	DIBS %	**	CPI %	*	Excess Return %
1990	53,0		60,413		-7,4
1991	80,0		71,137		8,8325
1992	86,5		65,967		20,53
1993	86,7		71,076		15,673
1994	158,0		125,49		32,551
1995	123,2		78,9		44,274
1996	134,2		79,758		54,437
1997	124,5		99,094		25,409
1998	115,5		69,726		45,814
1999	109,6		68,792		40,785
2000	38,2		39,034		-0,832
2001	99,9		68,532		31,357
2002	63,5		29,749		33,754
2003	44,1		18,356		25,748
2004	24,9		9,3195		15,569
2005	16,2		7,72		8,4367
2006	18,0		9,6535		8,3652

Table 6 Source: ** Yearly compounded interest rates of treasury discounted auctions were taken from the website of Turkish Treasury. * Change in consumer price indexes were taken from the web site of Turkish Statistics Institute.

Financial account liberalization has accelerated the inflow of short term portfolio capital and since 1989, the return on hot money in Turkey has been well above world

averages. The dollar based return on hot money was 28.95% in 1990, 17.2% in 1991, and 46.84% in 1995.[41] As seen in the above table, beginning from year 1991, return from government bonds are well above the inflation rate. This return has attracted capital inflows.

Portfolio equity purchases accelerated after Turkey started accession talks with European Union. Structural reforms in financial markets and regulatory restructurings and also stable political environment after 2002 contributed to the increase in portfolio capital flows. In 2005, non residents purchased USD 5,7 billion net worth of securities from Istanbul Stock Exchange and USD 5,9 billion net worth of government debt. (Refer to Table 7). In 2006, foreign investors controlled 65.26 percent of the total market value of all the shares listed on the Istanbul Stock Exchange. (Central Registration Institution)

Description	**Units**	**Scale**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Current account balance	US dollars	Billions	0.202	-5.500	3.982	-0.467	-2.058	-2.101	1.984	-1.344
Current account balance in percent of GDP	Ratio		0.1	-3.1	3.1	-0.3	-1.2	-1.1	1.0	-0.7
Inflation, annual percent change	Percent		70.1	66.1	106.3	93.6	79.4	85.0	83.6	63.5
Portfolio Equity Flows	US dollars	millions	350	570	988	195	191	8	-518	428
Market cap	US dollars	millions	134.467	275.286	234.504	323.955	342.691	567.312	579.497	666.604
IMKB 100 return			-46%	206%	-50%	-7%	40%	84%	-51%	242%
Subject Description	**Units**	**Scale**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	
Current account balance	US dollars	Billions	-9.819	3.390	-1.522	-8.035	-15.604	-23.007	-27.019	
Current account balance in percent of GDP	Ratio		- 5.0	2.4	-0.8	-3.3	-5.2	- 6.3	-6.5	
Inflation, annual percent change	Percent		54.3	53.9	44.8	25.2	8.6	8.2	6.5	
Portfolio Equity Flows	US dollars	millions	489	-79	-16	905	1.427	5.669	2.560	
Market cap	US dollars	millions	1.164.762	511.605	445.387	532.840	889.946	1.412.430	1.911.119	
IMKB 100 return			-51%	-32%	-34%	111%	38%	61%	-6%	

Table 7 Source: The data is derived from International Monetary Fund, World Economic Outlook Database, 2006

Although high and attractive interest rates together with other pull factors (refer to Section 1.1) for global investors are driving forces for capital inflows, the magnitude of capital flows to the emerging financial markets since 2002 raises interesting questions. One argument behind the fact that global liquidity increased in recent years is that, since

[41] State Planning Organisation Main Economic Indicators (1995); Central Bank Quarterly and Monthly Bulletin

crude oil prices usd per barrel increased significantly, oil exporting countries have created considerable amount of wealth and this liquidity or funds directly poured into high yielding emerging market assets. (Kumcu, Ercan, 2007)[42]

Portfolio equity investment of foreigners is no doubt an important way of financing current account deficits. However, in financing of current account balance, although is not a reliable source; the volume of net errors and omissions cannot be undermined. The informal inflows have reached record levels particularly in 2003 and 2005 (January-July), with rates of 62.8% and 35.2% of the current account deficit respectively; particularly related to the inflows from Iraq as well as the reversal of domestic capital flight and a shift of informal foreign currency savings back to local currency.[43]As seen in the below table, net errors and omissions financed current account deficits in years 1994, 1995, 1996, 1999, 2002, 2003, 2004 and 2005.

	Current Account Balanc	Portfolio Investment	Net Errors and Ommissions
1992	-974	2,411	-1,190
1993	-6,433	3,917	-2,162
1994	2,631	1,158	1,832
1995	-2,339	237	2,432
1996	-2,437	570	1,499
1997	-2,638	1,634	-987
1998	1,984	-6,711	-697
1999	-1,340	3,429	1,717
2000	-9,821	1,022	-2,760
2001	3,392	-4,515	-1,759
2002	-1,521	-593	115
2003	-8,036	2,465	4,941
2004	-15,601	8,023	2,191
2005	-22,603	13,437	2,116
2006	-31,654	7,360	-3,285

Table .8 Source: www.treasury.gov.tr

Total shares in foreign investor portfolios amount to 7.7 billion with a market value of about 49.3 billion new Turkish lira. (Central Registration Institution).

[42] "This argument was supported by the article of Ercan Kumcu (2007) "Kuresel Ekonomi Teshis Bekliyor" *Hurriyet*

[43] Onaran, Ozlem (2006) "Speculation Led growth and Fragility in Turkey" *Vienna University of Economics Working Paper No.93*

3 SOME EMPIRICS FROM OTHER EMERGING MARKETS

Capital Flows to emerging market economies increased in 1990s both due to financial liberalization policies adopted by emerging markets and due to globalization of financial markets with the developments in communications technology. However, the history of capital flows to emerging markets has also seen capital reversals in financial crisis in Mexico(1994), Asia in 1997, Russia and Brazil in 1998-1999.

Contrary to this, emerging markets have been attracting high volumes of portfolio capital since 2000. Behind this global liquidity finance world indicate for low interest rates in developed economies and financial globalization. As I suggested in section 2.3, increase in crude oil prices could be another driving force.

In any circumstances, global investors' search for higher yields led to record levels of liquidity into emerging country financial markets especially in 2005 and 2006.

Portfolio equity flows have played an important role in financing current account imbalances in developing countries. Private capital flows represented a major source of finance for developing economies, accounting for about 85 percent of all net long-term resource flows to developing countries and amounting to $256 billion in 1997 prices (World Bank, 1998, p. 8). As it is mentioned global capital flows reversed after the Asian and Russia crisis but later concentrated in a few emerging economies. The World Bank (2001) estimates that four countries- Brazil, China, Mexico, and Turkey receive more than 85% of all equity flows to developing countries.

ratio of current account deficit to GDP	2000	2001	2002	2003	2004	2005	2006
Turkey	-5	2.4	-0.8	-3.3	-5.2	-6.3	-6.5
Russia	18	11.1	8.4	-8.2	9.9	11.3	11.8
Brazil	-4	-4.5	-1.7	0.8	1.9	1.8	1
Bulgaria	-6	-7.3	-5.6	-9.2	-5.8	-11.8	-10.2
Hungary	-9	-6.2	-7.1	-8.7	-8.8	-7.9	-8.2
S.Africa	0	0.1	0.6	-1.3	-3.4	-4.2	-3.9
Poland	-6	-2.8	-2.5	-2.1	-4.1	-1.6	-2.5

Table 9 Source: IMF, IFS

As it was mentioned before, according to the World Bank, the five biggest emerging markets are China, India, Indonesia, Brazil and Russia. Other countries that are

also considered as emerging markets include Mexico, Argentina, South Africa, Poland, Turkey, and South Korea. These countries are identified as having made a critical transition from a developing country to an emerging market. Each of them is important as an individual market and the combined effect of the group as a whole will change the face of global economics and politics. Table 9 illustrates ratio of current account deficits to GDP ratio of these countries.

The ratio of the current account deficit to GDP compares the deficit relative to the size of the economy As it can be seen in the table, the ratio of current account deficit to GDP in all developing countries excluding Russia increased significantly between years 2000-2006. It is observed that current account deficit continuing between years 2000-2002 in Brazil transformed into current account surplus by 2003. The most problematic ones within developing countries in the ratio of current account deficits to GNP are Bulgaria, Hungary, Turkey, S. Africa and Poland, respectively.

In section 2.2.2, I have mentioned high real interests attracted foreign portfolio capital. Below table summarizes deposit rates and inflation rates for the selected emerging markets. As it is seen, Turkey offers the highest real interest rates and therefore highest return for global investors.

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TURKEY	deposit rate	79.49	80.11	78.43	47.16	74.70	50.49	37.68	24.26	20.40	21.65
	inflation rates	85.73	84.64	64.87	54.92	54.40	44.96	25.30	8.60	8.18	9.46
SOUTH AFRICA	deposit rate	15.38	16.50	12.24	9.20	*9.37*	10.77	9.76	6.55	6.04	7.14
	inflation rates	8.60	6.88	5.18	5.34	5.70	9.16	5.86	1.39	3.40	4.64
BRAZIL	deposit rate	24.35	28.00	26.02	17.20	17.86	19.14	21.97	15.42	17.63	13.93
	inflation rates	6.93	3.20	4.86	7.04	6.84	8.45	14.71	6.60	6.87	4.18
BULGARIA	deposit rate	46.83	3.00	3.21	3.10	*2.92*	2.80	2.93	3.05	3.08	3.17
	inflation rates	1058.37	18.67	2.57	10.32	7.36	5.81	2.16	6.35	5.04	7.26
RUSSIA	deposit rate	*16.77*	17.05	13.68	6.51	4.85	4.96	4.48	3.79	3.99	4.05
	inflation rates	14.77	27.67	85.74	20.78	21.46	15.79	13.68	10.88	*12.66*	*9.68*
HUNGARY	deposit rate	16.94	14.42	11.94	9.49	8.40	7.41	10.98	9.09	5.17	7.45
	inflation rates	18.28	14.23	10.00	9.80	9.22	5.27	4.64	6.78	3.55	3.88
POLAND	deposit rate	19.36	18.19	11.22	14.17	11.80	6.21	3.71	3.75	2.79	n.a.
	inflation rates	15.08	11.73	7.28	10.06	5.49	1.90	0.79	3.58	2.11	1.11

Table 10 Source: The data is derived from International Monetary Fund's International Financial Statistics Database, 2007Deposit rates stand for annual average of 3 month deposit rates and inflation rates are the %change in annual CPI.

Alternatively below table summarizes equity purchases of foreigners (net of PI EQUITY SECURITIES ASSETS-PI EQUITY SECURITIES LIABILITIES) in stock markets of Turkey, Brazil, Bulgaria, Russia, Hungary and South Africa and also displays net errors and omissions in the balance of payments. All data displayed is scaled in million US dollar and the values are yearly totals of monthly statistics.

COUNTRY	DESCRIPTOR	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TURKEY	PI EQUITY SECURITIES ASSETS	-50.000	-21.000	-46.000	-33.000	-36.000	-42.000	-33.000	-25.000	-20.000	n.a.
TURKEY	PI EQUITY SECURITIES LIAB	8.000	-518.000	428.000	489.000	-79.000	-16.000	905.000	1427.000	5669.000	1939.000.
TURKEY	NET ERRORS AND OMISSIONS	-987.838	-704.068	1716.480	-2695.500	-1722.510	116.429	4931.110	2111.720	2215.210	n.a.
BRAZIL	PI EQUITY SECURITIES ASSETS	-306.000	-553.000	-865.000	-1953.330	-1121.170	-388.622	-257.832	-121.362	-830.773	n.a.
BRAZIL	PI EQUITY SECURITIES LIAB	5099.000	-1768.000	2572.000	3075.910	2481.200	1980.740	2972.600	2080.930	6451.250	n.a.
BRAZIL	NET ERRORS AND OMISSIONS	-3160.220	-2910.720	239.616	2557.110	-498.277	-153.858	-932.656	-2144.960	-1095.740	n.a.
BULGARIA	PI EQUITY SECURITIES ASSETS	-8.500	-10.620	0.006	-8.153	-33.514	-16.827	-15.717	-7.154	-5.726	-107.747
BULGARIA	PI EQUITY SECURITIES LIAB	52.000	19.251	1.863	4.887	-8.603	-22.928	-23.193	21.504	363.136	94.749
BULGARIA	NET ERRORS AND OMISSIONS	256.448	-299.191	29.853	33.868	515.361	-715.909	-889.009	370.761	-772.258	253.948
RUSSIA	PI EQUITY SECURITIES ASSETS	32.455	-10.474	4.760	-40.225	-60.381	84.680	-46.792	-25.313	-733.203	-1129.100
RUSSIA	PI EQUITY SECURITIES LIAB	1264.730	713.990	-286.590	150.196	542.444	2626.180	421.844	233.360	-215.210	9427.580
RUSSIA	NET ERRORS AND OMISSIONS	-9237.080	-9806.310	-8983.710	-9736.610	-9982.420	-6501.820	-9712.690	-6433.380	-8753.210	1131.190
HUNGARY	PI EQUITY SECURITIES ASSETS	-32.096	-45.401	15.783	-150.828	-54.657	-49.861	-41.985	-438.502	-585.439	*-1707.64*
HUNGARY	PI EQUITY SECURITIES LIAB	979.134	555.940	1191.170	-369.341	134.211	-137.319	268.696	1490.840	-16.334	*916.554*
HUNGARY	NET ERRORS AND OMISSIONS	-306.688	-285.238	-388.777	-174.136	29.043	145.395	226.065	-1772.930	*-2315.24*	*-3480.54*
SOUTH AFRICA	PI EQUITY SECURITIES ASSETS	-3891.380	-4768.050	-4049.700	-3019.360	-4863.670	-571.959	-48.937	-794.809	-976.296	n.a.
SOUTH AFRICA	PI EQUITY SECURITIES LIAB	5472.630	8632.320	9001.050	4168.640	-962.206	-388.001	685.322	6661.130	6915.160	n.a.
SOUTH AFRICA	NET ERRORS AND OMISSIONS	-1120.470	-1741.530	-500.229	648.763	1044.800	460.798	3886.830	6319.830	4242.800	n.a.

Table 11 Source: The data is derived from International Monetary Fund, International Financial Statistics Database, 2007. n/a stands for .missing data for 2006.

When investigated, Turkey has the highest positive net errors and omissions in its balance of payments after South Africa meaning that higher portion of the current account deficits are financed with funds where the resource of it is not certain. Brazil and Russia on the other hand, have the highest negative net errors and omissions.

It is observed that, the highest portfolio equity purchases are realized in South Africa, Brazil and Turkey respectively. Portfolio equity purchases were its highest level in 1999 for South Korea, in 2003 for Turkey and Brazil. In Hungary, the highest volume of portfolio equity capital entered into the country in 2004 at which Hungary joined the European Union. Compared to other emerging markets, Bulgaria and Russia have relatively low entry of foreign portfolio equity capital.

4. EMPIRICAL FINDINGS

In section 1.3 and 1.4, finance literature was reviewed for measurement of market efficiency. Accordingly several ratios were identified to be helpful in determining market efficiency. These ratios are based on the assumptions/determinants of Efficient Market Hypothesis which are based on liquidity, size and transaction costs. All efficiency parameters were estimated on a monthly basis for the period 1992-2006. In this section the relationship between efficiency parameters and short term portfolio equity flows will be analyzed.

4.1 DATA DESCRIPTION

To measure the size of the stock market, I use the ratio of market capitalization divided by Gross Domestic Product (GDP). Market capitalization equals the total value of all listed shares in an equity market. The assumption underlying the use of this variable as an indicator of stock market development is that the size of the stock market is positively correlated with the ability to mobilize capital and diversify risk. Both Bekaert and Harvey (1997) and Levine and Zervos (1998) use the ratio of the equity market capitalization to gross domestic product as a measure of the size of the local equity market. Market capitalization data was generated from the Istanbul Stock Exchange for the relevant period of 1992-2006 and Gross Domestic Product data was generated from the Central Bank of Turkey.

To measure the liquidity of the stock market, I use two measures. First, I compute the ratio of total value of trades on Istanbul stock exchange divided by GDP. This measures the value of equity transactions relative to the size of the economy. This liquidity measure complements the measure of stock market size since markets may be large but inactive. The second measure of liquidity equals the ratio of the total value of trades on the Istanbul stock exchange divided by market capitalization and is frequently called the turnover ratio. This measures the value of equity transactions relative to the size of the equity market. The turnover ratio also complements the measure of stock market size since markets may be large but inactive. Monthly Value traded data was generated from the website of Istanbul stock exchange for the relevant period and again GDP data was generated from the Central Bank of Turkey.

Again in order to measure size of the market after foreign portfolio flows, I used monthly trade volume and number of contracts data of IMKB 100 index which were generated from Istanbul Stock Exchange database. Trade volume data was taken as one thousand ytl per nominal and number of contracts is simply the units of contracts traded.

To examine the effect of portfolio equity flows on stock market development and returns I have also examined the relationship between Price earnings ratio[44], Dividend Yields ratio and portfolio equity investment. Monthly P/E and D/P ratios of IMKB 100 index were generated from the website of Istanbul Stock Exchange.

Number of listed companies' data was observed in order to see whether portfolio equity inflows attracted initial public offerings. Annual number of listed companies data was generated from Istanbul Stock exchange database. Also, IMKB-100 index prices were generated from the Istanbul Stock Exchange database.

In order to examine the effect of DIBS (interest rates on public debt instruments) on portfolio equity flows, I have generated monthly average DIBS rates from the website of Republic of Turkey Prime Ministry Undersecretariat of Treasury between years 1992-2006.

Similarly, to check the argument that crude oil price increases created global liquidity and increased portfolio equity capital, I have generated monthly crude oil prices (usd per barrel) from the website of Republic of Turkey Prime Ministry Undersecretariat of Treasury and examined the relationship between portfolio equity flows and crude oil prices.

Finally, monthly Portfolio equity flows data between years 1992-2006 was generated from the Balance of Payment statistics under the website of Republic of Turkey Prime Ministry Undersecretariat of Treasury.

[44] P/E is short for the ratio of a company's share price to its per share earnings. Theoretically a stock's price to earnings ratio tells how much investors are willing to pay per dollar of earnings.

4.2 DATA ANALYSIS

4.2.1 LIMITATIONS OF THE STUDY

This study was performed to examine the relationship between portfolio equity flows and market efficiency parameters of Turkey between years 1992-2006. In order to do this, both correlation tests and simple linear regression tests were performed on SPSS. Multiple regression test was not performed since efficiency parameters give autocorrelation and multicollinearity. Therefore the effect of portfolio equity flows on each efficiency parameter was analyzed separately through simple linear regression analysis.

4.2.2 DESCRIPTIVE STATISTICS

Below table summarizes descriptive statistics for all the variables.

Descriptive Statistics

	Minimum	Maximum	Mean	Std.	Skewness	Kurtosis
value traded\GDP	.00	1.13	.2242	.26509	1.140	.433
value traded\market cap.	.03	.35	.1242	.05001	1.076	2.391
market cap\GDP	.00	8.08	1.5543	1.81088	1.344	1.416
trade volume	607.45	11211526	2070034	2785827	1.219	.252
P/E	.00	334.54	27.0402	44.29084	4.530	22.543
D/P	.62	9.03	2.6959	1.66653	1.223	1.057
number of contracts	850.60	4790147	1881244	1243287	.257	-.889
number of listed companies	145.00	290.00	239.1333	47.32892	-.785	-.855
dibs	13.90	327.00	82.7617	50.48799	1.052	3.510
prtflows	-885794.4	1320380	78021.2	250034.1	1.807	7.311
oil prices-usd	9.90	67.80	25.3361	13.49456	1.613	1.830
imkb100returnytl	-.39	.80	.0499	.16215	.990	3.196
imkb100rt$	-.41	.72	.0202	.16905	.481	1.516

Appendix 1

The distribution is considered as left steep when skewness is greater than zero and considered as right steep when skewness is less than zero. Similarly, when kurtosis is greater than zero, the distribution is considered as lepto kurtic and when less than zero, is considered as platy kurtic. Skewness and kurtosis values give an idea about the shape of the distributions.

Maximum portfolio flows indicate date of November 2005 and minimum value indicate date of December 2006. Minimum ratio of value traded/ GDP indicate the date of October 1992 and maximum value indicate date of March 2006. Minimum ratio of value traded/ MCAP indicate the date of October 1992 and maximum value indicate the date of November 2002. Minimum ratio of MCAP/ GDP indicate the date of September 1992 and maximum value indicate the date of February 2006. Minimum ratio of trade volume indicate the date of May 1992 and maximum value indicate the date of March 2006 as was the case in value traded/GDP ratio. P/E ratio and Dividend yield ratio is at its maximum on August 2002 and January 1993 respectively. As it was expected number of companies listed on Istanbul Stock Exchange was its maximum of 290 in 2006 and its minimum of 145 in 1992.

IMKB 100 index return has hit at its peak on December 1999 and deep at August 1998.DIBS rate was the highest on May 1994 financial crisis and lowest on May 2006. Finally crude oil prices were its highest level on 2006 August and minimum on 1999 February.

4.2.3 CORRELATION ANALYSIS

Correlations		VT/GDP	VT/MCAP	MCAP/GDP	trade volume	P/E	D/P	# of contracts	# of listed companies	dibs	prtflows	oil prices-usd	prtflwusd	imkb100usd
VT/GDP	Pearson	1.00000	0.57719**	0.932887**	0.926793**	0.135045	-0.572623**	0.897043**	0.675667**	-0.724**	0.428**	0.782**	0.349**	0.665**
	Sig.		0.00000	0.000000	0.000000	0.070687	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000002	0.000000
VT/MCAP	Pearson	0.577**	1.00000	0.346**	0.488**	0.216**	-0.573**	0.667**	0.479**	-0.364**	0.077714	0.18**	0.004050	0.205**
	Sig.	0.00000		0.000002	0.000000	0.003517	0.000000	0.000000	0.000000	0.000000	0.299763	0.015415	0.956965	0.005721
MCAP/GDP	Pearson	0.933**	0.346**	1.000000	0.889**	0.089055	-0.539**	0.833**	0.698**	-0.726**	0.477**	0.892**	0.39144**	0.75915**
	Sig.	0.00000	0.00000		0.000000	0.234501	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
TRDVOL	Pearson	0.927**	0.48841**	0.889**	1.000000	0.108415	-0.468**	0.821**	0.598**	-0.72**	0.475**	0.84**	0.388**	0.54**
	Sig.	0.00000	0.00000	0.000000		0.147427	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
P/E	Pearson	0.13505	0.216**	0.089055	0.108415	1.000000	-0.293**	0.161**	0.179**	-0.119531	-0.094176	-0.001975	-0.094129	-0.132695
	Sig.	0.07069	0.00352	0.234501	0.147427		0.000064	0.030409	0.016008	0.109988	0.208573	0.979010	0.208804	0.075774
D/P	Pearson	-0.573**	-0.573**	-0.539**	-0.468**	-0.293**	1.000000	-0.731**	-0.806**	0.468**	-0.184**	-0.345	-0.100873	-0.472**
	Sig.	0.00000	0.00000	0.000000	0.000000	0.000064		0.000000	0.000000	0.000000	0.013495	0.000002	0.177865	0.000000
# of contracts	Pearson	0.897**	0.667**	0.832**	0.8211**	0.161**	-0.731**	1.000000	0.85**	-0.646**	0.362**	0.678**	0.261**	0.66**
	Sig.	0.00000	0.00000	0.000000	0.000000	0.030409	0.000000		0.000000	0.000000	0.000001	0.000000	0.000396	0.000000
# of listed companies	Pearson	0.676**	0.479**	0.698**	0.598**	0.179**	-0.806**	0.85**	1.000000	-0.512**	0.274**	0.544**	0.161**	0.574**
	Sig.	0.00000	0.00000	0.000000	0.000000	0.016008	0.000000	0.000000		0.000000	0.000196	0.000000	0.030829	0.000000
DIBS	Pearson	-0.724**	-0.364**	-0.726**	-0.720**	-0.119531	0.468**	-0.646**	-0.512**	1.000000	-0.40**	-0.685**	-0.342**	-0.554**
	Sig.	0.00000	0.00000	0.000000	0.000000	0.109988	0.000000	0.000000	0.000000		0.000000	0.000000	0.000003	0.000000
prtflows	Pearson	0.428**	0.07771	0.477**	0.475**	-0.094176	-0.184*	0.362**	0.274**	-0.40**	1.000000	0.50**	0.942**	0.404**
	Sig.	0.00000	0.29976	0.000000	0.000000	0.208573	0.013495	0.000001	0.000196	0.000000		0.000000	0.000000	0.000000
oil prices-usd	Pearson	0.782**	0.18**	0.892**	0.84**	-0.001975	-0.345**	0.678**	0.544**	-0.685**	0.50**	1.000000	0.415**	0.706**
	Sig.	0.00000	0.01542	0.000000	0.000000	0.979010	0.000002	0.000000	0.000000	0.000000	0.000000		0.000000	0.000000
prtflwusd	Pearson	0.349**	0.00405	0.391**	0.388**	-0.094129	-0.100873	0.261**	0.161*	-0.342**	0.942**	0.415**	1.000000	0.363**
	Sig.	0.00000	0.95697	0.000000	0.000000	0.208804	0.177865	0.000396	0.030829	0.000003	0.000000	0.000000		0.000001
imkb100usd	Pearson	0.665**	0.205**	0.759**	0.54**	-0.132695	-0.472**	0.66**	0.574**	-0.554**	0.404**	0.706**	0.363**	1.000000
	Sig.	0.00000	0.00572	0.000000	0.000000	0.075774	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000001	

Appendix .2

In this part, correlations between market efficiency parameters and portfolio equity flows are analyzed.

Firstly value traded/GDP has positive significant correlation of 42,8% with portfolio flows at 1 % significance level which means as portfolio equity flows increases, value traded/GDP ratio increases. This relationship is statistically significant.

In contrast, no significant correlation has been observed between value traded/Market cap and portfolio equity flows. However, there is significant positive correlation of 47,7 % between Market Cap/ GDP ratio and portfolio equity flows and correlation is significant at 1% significance level.

Again trade volume and portfolio flows are positively correlated. Degree of correlation is 47,5 % and correlation is significant at 1 % significance level. Also Dividend yield and portfolio flows are positively correlated Degree of correlation is 18,4 % at 5 % significance level meaning that as portfolio flows increase, firms' take initiative to pay dividends to the investors.

Portfolio flows and number of contracts traded in Istanbul stock exchange is positively correlated. The degree of correlation is 36,2 % and the relationship is significant at 1%significance level. Similarly, number of listed companies and portfolio flows are positively correlated. The degree of correlation is 27,4 % and relationship is significant at 1% significance level.

Another interesting finding is that, there is negative significant correlation of 40% between DIBS rates and portfolio flows. This relationship identifies, as risk premium of the country increases, portfolio capital flows decrease. Alternatively, as government bond yields' increase, global funds liquidate their holdings of equity securities and turn into debt markets since yields on government bonds are much higher. This relationship is also confirmed through the relationships between DIBS rates and value traded/ GDP, value traded/ MCAP, MCAP/ GDP and trade volume respectively. DIBS rate and the efficiency parameters are negatively correlated at –72,4, -36,4,-72,6, 72% respectively.

Most interestingly, the relationship between crude oil prices and portfolio flows are the strongest. There is significant positive correlation of 50 % between crude oil prices and portfolio equity flows meaning that as crude oil prices increase, global liquidity increases and those oil exporting countries transfer funds to emerging country

equity markets. This relationship is significant at 1%level. The similar effect can be observed between crude oil prices and IMKB 100 index. There is strong positive significant correlation of 70,6% between these variables.

Another relationship can be observed between portfolio flows in usd and IMKB 100 index (in usd). There is significant positive relationship of 36,3% meaning that as portfolio flows increase, IMKB 100 index prices increase as well.

4.2.4 REGRESSION ANALYSIS

In regression analysis, simple linear regression test was performed to observe the explanatory power of portfolio flows on each market efficiency parameters separately.

4.2.4.1 In this part, the relationship between value traded/GDP and portfolio equity flows is presented. As it is discussed in section 1.3, value traded/GDP measures the size of the trades in relation to the general economy. Findings suggest portfolio flows explain 17,9% of the variance in value traded/GDP ratio.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.428[a]	.183	.179	.24022	.183	39.977

a. Predictors: (Constant), prtflows

b. Dependent Variable: value traded\GDP

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.307	1	2.307	39.977	.000[a]
	Residual	10.271	178	.058		
	Total	12.578	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: value traded\GDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.189	.019		10.060	.000
	prtflows	4.54E-007	.000	.428	6.323	.000

a. Dependent Variable: value traded\GDP

Anova test results indicate the model is significant and t test indicate coefficients are significant.

4.2.4.2 Also, the relationship between value traded/market capitalization and portfolio equity flows were investigated. As it is discussed in section 1.3, value traded/market cap measures the size of the trades in relation to the size of the stock market.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.078[a]	.006	.000	.04999	.006	1.082

a. Predictors: (Constant), prtflows

b. Dependent Variable: value traded\market cap.

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.003	1	.003	1.082	.300[a]
	Residual	.445	178	.002		
	Total	.448	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: value traded\market cap.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.123	.004		31.494	.000
	prtflows	1.55E-008	.000	.078	1.040	.300

a. Dependent Variable: value traded\market cap.

However as it is seen no significant relationship identified since adjusted R^2 is very low.

4.2.4.3 Market cap/GDP measures the size of the stock market in relation to the general economy of the country. To analyze the relationship, portfolio equity flows were set as independent variable and monthly market cap/GDP ratios were set as the dependent variable. The model suggests that portfolio equity flows explain 22,4% of the variance in market Cap/GDP and the model and coefficients are significant at 5% significance level.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.477[a]	.228	.224	1.59568	.228	52.536

a. Predictors: (Constant), prtflows

b. Dependent Variable: market cap\GDP

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133.768	1	133.768	52.536	.000[a]
	Residual	453.225	178	2.546		
	Total	586.993	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: market cap\GDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.285	.125		10.308	.000
	prtflows	3.46E-006	.000	.477	7.248	.000

a. Dependent Variable: market cap\GDP

4.2.4.4 In this part the effect of portfolio equity flows on trading volume is analyzed. Monthly portfolio equity flows (thousand ytl) are determined as the independent variable and monthly trading volume of the IMKB-100 index (thousand ytl) is set as the dependent variable. The intuition is that if portfolio equity flows help to improve stock market development and market efficiency, then we expect trading volume to increase. Below findings summarize the relationship.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.475[a]	.226	.221	2458095.69	.226	51.913

a. Predictors: (Constant), prtflows

b. Dependent Variable: trade volume

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3E+014	1	3.137E+014	51.913	.000[a]
	Residual	1E+015	178	6.042E+012		
	Total	1E+015	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: trade volume

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1656963	191975.9		8.631	.000
	prtflows	5.294	.735	.475	7.205	.000

a. Dependent Variable: trade volume

The analysis above suggests, portfolio equity flows have an explanatory power of 22,1% over the change in trading volume of the IMKB-100 index.

4.2.4.5 Similarly, if portfolio equity flows help to improve stock market development and market efficiency then we expect number of contracts traded to move in parallel with portfolio equity flows. In this part the effect of portfolio equity flows on number of

contracts is analyzed. Monthly portfolio equity flows (thousand ytl) are determined as the independent variable and monthly units of traded contracts is set as the dependent variable. Below presented is the summary of findings.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.362[a]	.131	.126	1162001.97	.131	26.919

a. Predictors: (Constant), prtflows

b. Dependent Variable: number of contracts

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4E+013	1	3.635E+013	26.919	.000[a]
	Residual	2E+014	178	1.350E+012		
	Total	3E+014	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: number of contracts

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1740632	90751.712		19.180	.000
	prtflows	1.802	.347	.362	5.188	.000

a. Dependent Variable: number of contracts

The analysis above suggests, portfolio equity flows have an explanatory power of 12,6% over the change in number of contracts traded on the IMKB-100 index. Both the model and coefficients are significant at 5% significance level.

4.2.4.6 In order to analyze the effect of portfolio equity inflows on cost of capital, I have examined the explanatory power of portfolio inflows (in million usd) on IMKB 100 index.(usd) Therefore, monthly IMKB-100 price index were taken as a dependent

variable and monthly portfolio inflows were taken as an independent varibale.Below presented is the summary of findings.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.363[a]	.132	.127	388.04695	.132	27.039

a. Predictors: (Constant), prtflwusd

b. Dependent Variable: imkb100usd

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4071491	1	4071490.617	27.039	.000[a]
	Residual	26803318	178	150580.438		
	Total	30874809	179			

a. Predictors: (Constant), prtflwusd

b. Dependent Variable: imkb100usd

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	693.534	30.615		22.654	.000
	prtflwusd	.749	.144	.363	5.200	.000

a. Dependent Variable: imkb100usd

As it is presented, portfolio equity inflows have 12,7% explanatory power over determining IMKB-100 prices. Anova test suggests the model is meaningful and t test suggests coefficients are significant at 5% significance level. However, these results are taken at time t=0. To further investigate the effect of portfolio equity inflows on IMKB-100 prices t=1 and t=2 values of the IMKB-100 index was also investigated since portfolio equity flows may have affected IMKB-100 prices with a time lag.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.416[a]	.173	.168	379.53475	.173	36.993

a. Predictors: (Constant), prtflwusd

b. Dependent Variable: imbkt1usd

As it can be observed above, at time t=1, the model's explanatory power increased from 12,7% to 16,8%. However at time t=2 explanatory power of the model decreased to 15,9%.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.404[a]	.163	.159	381.87055	.163	34.377

a. Predictors: (Constant), prtflwusd

b. Dependent Variable: imkbt2usd

4.2.4.7 In order to test explanatory power of portfolio flows on Price to Earnings ratio, simple linear regression test was performed.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.094[a]	.009	.003	44.21768	.009	1.593

a. Predictors: (Constant), prtflows

However no significant relationship identified since adjusted R^2 is very low.

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3114.316	1	3114.316	1.593	.209[a]
	Residual	348026.1	178	1955.203		
	Total	351140.4	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: P/E

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.342	3.453		8.207	.000
	prtflows	-1.7E-005	.000	-.094	-1.262	.209

a. Dependent Variable: P/E

4.2.4.8 Similarly the predictive power of portfolio flows on dividend yields was also observed. Again, the predictive power of portfolio flows on dividend yields is quite low and not significant.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.184[a]	.034	.028	1.64272	.034	6.227

a. Predictors: (Constant), prtflows

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.803	1	16.803	6.227	.013[a]
	Residual	480.337	178	2.699		
	Total	497.140	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: D/P

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.792	.128		21.759	.000
	prtflows	-1.2E-006	.000	-.184	-2.495	.013

a. Dependent Variable: D/P

4.2.4.9 Since with foreign portfolio flows, liquidity and investor base is enlarged, then we expect initial public offerings to increase as well. Therefore size and depth of the market should increase. So I have tested whether portfolio flows have predictive power over number of companies listed. However no significant relationship observed since there may be other significant factors such as general macroeconomic environment, etc. that affect IPOs.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.274[a]	.075	.070	45.64370	.075	14.462

a. Predictors: (Constant), prtflows

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30128.944	1	30128.944	14.462	.000[a]
	Residual	370835.9	178	2083.348		
	Total	400964.8	179			

a. Predictors: (Constant), prtflows

b. Dependent Variable: number of listed companies

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	235.085	3.565		65.947	.000
	prtflows	5.19E-005	.000	.274	3.803	.000

a. Dependent Variable: number of listed companies

4.2.4.10 I have also tested whether crude oil prices have any effect on portfolio equity inflows. To test this I have taken monthly portfolio equity flows (in million usd) as dependent variable and monthly crude oil prices (usd per barrel) as independent variable and examined the explanatory power of the model and significance of the model and variables. Below is the summary of Linear regression results.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.415[a]	.173	.168	183.76080	.173	37.113	.000

a. Predictors: (Constant), oil prices-usd

b. Dependent Variable: prtflwusd

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1253216	1	1253216.408	37.113	.000[a]
	Residual	6010709	178	33768.030		
	Total	7263926	179			

a. Predictors: (Constant), oil prices-usd

b. Dependent Variable: prtflwusd

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-87.397	29.199		-2.993	.003
	oil prices-usd	6.201	1.018	.415	6.092	.000

a. Dependent Variable: prtflwusd

As it is presented at time t=0 crude oil prices have an explanatory power of 16,8% over portfolio equity flows. As the Anova test suggests, the model is significant at 5% significance level and so are the coefficients. R value suggests crude oil prices and portfolio equity inflows have a positive significant correlation of 41,5%.

4.2.4.11 Finally, I have examined the relationship between monthly DIBS rates and portfolio equity flows to see whether high DIBS rates determine high portfolio inflows and vice versa. To do so, monthly DIBS rates were taken as independent variable and portfolio equity flows were taken as dependent variable. Below tables summarize findings.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.400[a]	.160	.155	229839.920	.160	33.836

a. Predictors: (Constant), dibs

b. Dependent Variable: prtflows

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2E+012	1	1.787E+012	33.836	.000[a]
	Residual	9E+012	178	5.283E+010		
	Total	1E+013	179			

a. Predictors: (Constant), dibs

b. Dependent Variable: prtflows

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	241828.1	32961.987		7.337	.000
	dibs	-1979.261	340.260	-.400	-5.817	.000

a. Dependent Variable: prtflows

Adjusted R square tells us the explanatory power of DIBS over portfolio equity flows is 15,5% where model and the coefficients are significant at 5% level.

4.2.5 SUMMARY OF FINDINGS

Dependent Variable	Independent Variable	Correlation	Significant	Regression Model		
				Constant	Beta	R Square
value traded/GDP	portfolio Flows	0.428	yes	0.18874269	0.00000045	17.9
value traded/MCAP	portfolio Flows	0.077	no	0.12296825	0.00000002	0
MCAP/GDP	portfolio Flows	0.477	yes	1.285	0.00000346	22.4
trading volume	portfolio Flows	0.475	yes	1,656,963	5.294330	22.1
# of contracts traded	portfolio Flows	0.362	yes	1,740,632	1.8022	12.6
IMKB 100 index-usd t=0	portfolio Flows-usd	0.363	yes	693,534	0.749	12.7
IMKB 100 index-usd t=1	portfolio Flows-usd	0.416	yes	677,923	0.000827726	16.8
P/E ratio	portfolio Flows	-0.094	no	28.3417	-0.000017	0.003
D/P ratio	portfolio Flows	-0.184	yes	2.7915	-0.000001	0.028
# of companies listed	portfolio Flows	0.274	yes	235,085	0.00005189	0.07
portfolio Flows-usd	crude oil prices	0.415	yes	-87.39696816	6.20051623	16.8
portfolio Flows	DIBS	-0.4	yes	89.0580	-0.0000807	15.5

Table 12

Above table summarizes the degree of relationships between portfolio flows and market efficiency parameters. Also, the predictive power of independent variables over the dependent variable disclosed. As the findings suggest, portfolio flows have predictive power over trading volume MCAP/GDP at a degree of 22%. Therefore it can be said that with the entry of foreign portfolio capital to the Turkish equity market, the size of the stock market in relative to the size of the general economy increases. Also foreign investors increase trading volume and therefore liquidity increases. Following this relationship, predictive power of portfolio flows on value traded/GDP ratio is 17.9 %. Therefore traded value in relative to the size of the economy increases with foreign portfolio capital. Similarly, the predictive power of portfolio flows on IMKB 100 index is 16,8% at time t=1 and 12,7% at time t=0. This means that portfolio equity capital increases security prices and therefore stock market index which in turn decreases cost of capital of individual companies. The relationship is stronger at time t=1 since the increase in share prices gradually occurs.

Another interesting finding disclosed in this study is that the predictive power of crude oil prices over portfolio flows is 16.8%. Therefore it can be said that due to increasing oil prices, oil exporting countries created liquidity and are investing their wealth in emerging stock markets.

CONCLUSION

In this study, the affect of foreign portfolio equity investment on Turkish stock market development indicators and on general macroeconomic balances have been both theoretically and empirically indicated. The discussion began with an analysis of the factors pulling and pushing portfolio capital flows to the emerging markets following by discussing the costs and benefits of short term portfolio capital. Next, finance literature has been scanned for studies on indicators of an efficient market and theoretical reasoning on the relationship between portfolio equity flows and stock market efficiency has been put forward.

The next chapter dealt with Turkish economic history, underlying factors driving portfolio capital to the country, their economic consequences and Turkish stock market's role in the dynamics of the balance of payment equation.

Following chapter gave a comparative analysis of portfolio equity flows among highly debated emerging market economies.

Final chapter empirically illustrated the relationship between portfolio equity flows and market efficiency parameters. This study also contributed to the finance literature since the relationship between crude oil prices and portfolio equity flows have been considered for the first time. Findings suggest there is strong positive correlation between efficiency parameters and portfolio equity flows and it is found that portfolio equity flows have predictive power over value traded/GDP, MCAP/GDP, trading volume, number of contracts traded and IMKB 100 index returns. Also DIBS and crude oil prices have predictive power over short term portfolio flows.

It is no doubt that short term portfolio inflows help finance current account deficits, increases stock market development (in terms of volume of trading, market capitalization, number of participants, turnover and so on), creates liquidity, help achieve high growth rates and indirectly helps to build regulatory and institutional frameworks that will create investor confidence in the market and further increases entry to the market.

Large capital inflows can bring considerable economic benefits to developing countries. However, if not properly managed, can also cause economies to overheat, increase exchange rate volatility, and lead eventually to large outflows. The highly

volatile nature of these short term investments presents serious problems for maintaining economic stability in developing economies.

In summary, foreign portfolio equity investments represent an important opportunity and a tough challenge for developing countries in general and Turkey in particular. Turkey needs to encourage more sustainable, long-term foreign portfolio equity investments and instruments, that contribute to economic growth and reduce the risks of volatile, unpredictable and speculative types of foreign capital flows

First, developing countries should create an environment that would attract (and retain) foreign capital flows on a permanent basis. The most important measures are to ensure consistency and credibility of the reform programs and sustain high and competitive economic growth rate. Despite the fundamental changes in the economy, and positive impact of the EU accession process, the Balance of Payments and specifically the current account deficit remain to be seen as one of the major risk factors.

Second, some regulatory measures to correct market failures should be considered. In many emerging markets, the preconditions necessary for a well functioning market are not present. The preconditions relate to the infrastructure; quality, timely and orderly information flows and investor sophistication. The infrastructure includes good quality accounting standards, well-defined property rights, a well functioning legal system and properly qualified and trustworthy personnel. Quality, timely and orderly information flows relate to the asymmetries that allow unfair advantage to insiders and may result in manipulation, a public scandal and the consequent loss of confidence in the marketplace. The investor sophistication deals with educating the individual investor about the long run nature of securities investments, the risk and rewards of owning risky assets, portfolio management and in general reducing their disadvantage vis-à-vis insiders and professional investors. Regulatory measures minimize the risk of market collapse and build investor confidence and prevent losses from nonmarket forces (e.g. fraud, manipulation).

It should be noted that, although sustainability of portfolio capital in the long run is important for economic fundamentals, the effect of capital flight at time of loss of foreign investor confidence has limited results. That is the decline in the market development indicators is expected to be temporary. This is so, because the reversal in

portfolio equity flows does not necessarily mean that the integration of the emerging markets to the international financial system will be reversed. Unless the host country governments take measures to limit the free flow of financial capital, the integration process will continue. As the first shock of the financial crises subsided, international investors will gradually start to move their money back to emerging stock markets. Therefore the only consideration should be to prevent capital flight which can only be achieved through good economic management, avoiding political disputes, maintaining investor confidence to the financial markets and undertaking or continuing restructural reforms in the financial markets.

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