LOCATIONAL DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN AN EMERGING MARKET ECONOMY: EVIDENCE FROM TURKEY

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Over the past two decades, Turkey has recorded a substantial increase in the level of annual foreign direct investment (FDI) inflows. Building on the prior literature, this paper provides an empirical analysis of location-related determinants of FDI. This is undertaken by means of a co-integration analysis of major locational factors impacting upon the level of FDI inflows for the period 1980-1998. The evidence from this study supports the contention that while Turkey offers several location advantages to foreign investors in terms of market size, infrastructure, openness of the economy and market attractiveness, the lack of exchange rate and economic stability has hindered its efforts to harbor much higher volume of FDI.

INTRODUCTION

Foreign direct investment (FDI) has innumerable effects on the economy of a host country. It influences the production, employment, income, prices, exports, imports, economic growth, balance of payments, and general welfare of the recipient country. It is also probably one of the most significant factors leading to the globalization of the international economy. Flows of FDI are contributing to build strong economic links between industrialized countries and developing countries, and also among developing countries. The amount of FDI flowing to developing countries increased remarkably in the 1990s and now accounts for about 40 per cent of global FDI. This substantial surge in inward FDI flows to developing countries has been largely due to a rapid pace of liberalization movements in these countries.

Similar trends have also been observed in Turkey. In 1980, the Turkish Government initiated a series of reforms aiming to accomplish the following objectives: (i) minimizing state intervention; (ii) establishing a free market economy; and (iii) integrating the economy with the global economic system. One key progress was in the field of foreign direct investment, which has expanded rapidly following the liberalization program since the early 1980s. The import substitution (IS) strategy of development pursued until the early 1980s was one of the primary cause of the low levels of FDI in Turkey (Balasubramanyam, 1996). The cumulative FDI until 1980 was only $228 million. The major policy shift from the IS strategy towards a more outward oriented economy based on export development has attracted the interest of foreign investors in Turkey. Since the mid-1980s, foreign investors have been taking an increasingly prominent role in the Turkish economy as the recent liberal foreign investment and privatization policies began to show their results. Figure 1 shows this trend in the level of annual inflows of both actual and authorized FDI for the period 1980-1999. As of August 1999, the number of foreign equity venture formations reached a total of 4,817 with the amount of cumulative foreign capital inflows totaling $12,085 million. The authorizations for FDI during this period accumulated to $25,050 million (GDFI, 1999).

Table 1 shows the distribution of cumulative authorized FDI by country of origin. As is reflected in Table 1, European countries take the lead by accounting for over two-third of the total value of FDI. Following the European countries are the USA and Far Eastern countries with having shares of 12.0% and 6.4%, respectively.

FIGURE 1
Actual and Authorized FDI Flows in Turkey (1980-1998)
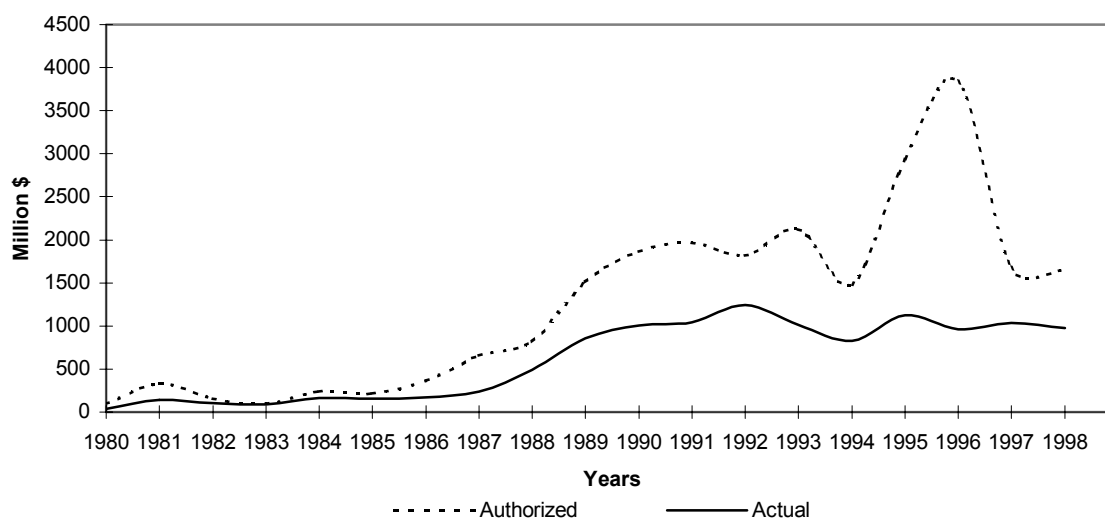
In terms of sectoral breakdown of FDI inflows, manufacturing sector accounts for 56.7 per cent of cumulative FDI authorizations with services constituting nearly 41 per cent as of August 1999. Agriculture and mining, however, take very small portion of FDI with both sectors together constituting 2.51 per cent of cumulative FDI authorizations.

Turkey should interest multinational enterprises (MNEs) from several perspectives, specifically as a manufacturing or service provision base from which to supply European, Central Asian and Middle Eastern markets, as a source of raw or processed materials, as a pool of talent and innovation that is readily transferred abroad, as a market for both imports and domestic goods and services, and as a potential joint venture partner anywhere in the world. The US Department of Commerce designated Turkey as one of the ten 'Big Emerging Markets' along with China, India, Russia and Brazil, which are expected to offer the greatest commercial opportunities due to their high economic growth and rapidly growing population. Similarly, the UK Government recently labeled Turkey as one of the ten primary developing markets.

To date, however, there have been relatively few empirical studies, which have examined location decisions of MNEs choosing Turkey as an investment location. Previous studies have relied more on collection of survey data

TABLE 1
Distribution of Cumulative Authorized FDI by Country of Origin as of August 1999 ($US Millions)

Country	Total	%
European Countries	**17,126.93**	**68.37**
France	5,268.00	21.03
Germany	2,973.02	11.86
Netherlands	2,902.03	11.58
Switzerland	1,953.49	7.79
U.K.	1,790.10	7.14
Italy	1,542.29	6.15
Other European Countries	698.00	2.78
USA	**3,004.37**	**11.99**
Far Eastern Countries	**1,614.94**	**6.44**
Japan	1,280.44	5.11
South Korea	206.00	0.82
Singapore	128.50	0.51
Middle East Countries	**669.77**	**2.67**
Saudi Arabia	289.27	1.15
Bahrain	165.00	0.65
Iran	108.00	0.43
Other Middle Eastern	107.50	0.43
Other Countries	**2,632.00**	**10.51**
TOTAL	**25,050.04**	**100.0**

Source: Undersecretariat of Treasury, General Directorate of Foreign Investment, *Foreign Investment Report*, September 1999, Ankara.

using managerial perceptions for measuring the explanatory factors (Erdilek, 1982; Tatoglu and Glaister, 1998), with no studies hitherto been recorded drawing on econometric approaches using secondary data. Given the rapid growth of FDI and its increasing importance, it is critical for both the public and private sectors to have as complete an understanding of the macroeconomic determinants of this phenomenon as possible. Building on the prior literature the focus of this paper is on the location-related determinants of FDI. This is undertaken by means of a time series analysis of major locational factors impacting upon the level of FDI inflows for the period 1980-1998.

The remainder of this paper is organized as follows: Next section presents a general theoretical background on extant FDI theories and location-specific determinants of FDI. The methodology of the study is presented in Section 3. Section 4 provides results and discussion of the findings. Section 5 discusses policy implications. Conclusions are set out in the last section.

THEORETICAL BACKGROUND

A number of theories and perspectives have been developed to explain the level and pattern of FDI or MNE activity since the late 1950s, when the topic started to receive scholarly attention. Both theoretical and empirical research on the formation of MNEs and the motivation for FDI has emphasized differing causal variables. Extensive reviews of the main FDI theories and the motivation for FDI can be found in Dunning (1993), Buckley and Casson (1985). These theoretical perspectives range from the mainstream economic theories (Hymer, 1960, 1976; Kindleberger, 1969; Vernon, 1966; Caves, 1971), internalization models (Buckley and Casson, 1976; Rugman, 1981) to Dunning's eclectic paradigm (1993).

While the theories on FDI present a much broader set of FDI determinants including firm-specific, strategic and transaction-related factors, the consideration of these factors would be relevant for highly disaggregated studies using firm-level data. Due to the nature of our objective and the availability of data, placing emphasis on the locational

determinants of inward FDI is considered to be more appropriate. Every potential host location is characterized by a set of factors. The elements of host country location factors can be broadly classified into two types. First, there are Ricardian-type endowments, which mainly comprise natural resources, most kinds of labor, and proximity to markets. Second, there exists a range of environmental variables acting as a function of political, economic, legal, and infra-structural factors of a host country. Both types of factors play a crucial role in a firm's decision to enter a host country. The sub-themes dealing with host country location factors can be summarized as market size and economic growth, raw materials and labor supply, political and legal environment, host government policies, level of industry competition in the host country market, geographical proximity and transportation costs, and host country infrastructure.

METHODOLOGY
The Model and the Variables

Various market characteristics have been found to influence the inflows of FDI, including market size and growth in market size. The market size in conjunction with the growth prospects of the host country market are important 'pull' factors and theoretically positively related to the level of FDI flows (Dunning, 1993 and Chandprapalert, 2000). Because a large market size is conducive to increase in demand for the products and services provided by foreign investors. Moreover, a huge market size allows the attainment of economies of scale, and transaction costs are thought to be lower in countries with higher levels of economic development (Caves, 1971; Zhao and Zhu, 2000).

Trade and investment regime, the 'openness' of the host country, and the adequacy of the basic infrastructure are some of the most important host country-specific determinants of FDI. Host countries pursuing FDI and external economic ties are expected to fit more easily into global production and trade patterns, and thus would be more attractive to foreign investors (Vernon, 1966; Root and Ahmed, 1978). In an open economy, it is easier to import raw materials or some capital goods,

which are necessary for the investment and also to export the finished goods. Thus the openness of the host country economy is expected to positively influence the FDI levels. Similarly, a foreign investor would prefer a host country with a good infrastructure, which will facilitate communication, transportation and distribution.

Real interest rate on commercial sight deposits is used as an ancillary variable to measure overall economic instability, which is expected to increase the user cost of capital in the host country economy and to affect the profitability of FDI negatively, so acting as a FDI deterrent. In a similar vein, exchange rates are expected to affect FDI inflows in so far as they affect a firm's cash flow, expected profitability and the attractiveness of domestic assets to foreign investors.

While previous literature on the subject has suggested several possible explanatory variables, it is not possible to include all of them. The basic full formulation of the model to be tested is as follows:

$$FDI = f\,(Y,\,X/M,\,I,\,\Delta Y,\,\Delta E,\,R) \qquad (1)$$

stating that foreign direct investment (FDI) is influenced by the size of domestic market (Y), openness of the economy to foreign trade (X/M), infrastructure of the host country (I), attractiveness of the domestic market (ΔY), exchange rate instability (ΔE), and economic instability (R).

The extant literature suggests a positive relationship between FDI and Y, X/M, I and ΔY, while a negative relationship is expected between FDI and ΔE and R.

Data Analysis
In this study, the variables used in the model are measured as follows:

FDI is measured by the actual inflow of foreign direct investment to Turkey. The host country market size (Y) is measured by gross domestic product (GDP). Openness of the economy to foreign trade (X/M) is computed by the ratio of exports to imports.

Infrastructure of the host country (I) is approximated by share of transportation, energy and communication expenditures in GDP. The attractiveness of the domestic market (ΔY) is proxied by growth rate of real GDP. ΔE denotes the fluctuations in exchange rate of domestic currency and is measured by percentage change in a foreign exchange basket based on a trade-weighted average of the major currencies ($, £, DM, Fr, Lt) of five countries, which constitute the main trading partners of Turkey. Finally, real interest rate on commercial sight deposits is used to approximate overall economic instability (R) in the host country.

All variables, except ΔY and R, are expressed in logarithms. They are deflated by the consumer price index. Data for the variables are compiled from the sources of Central Bank of Turkey and State Institute of Statistics on annual basis for the period 1980-1998.

EMPIRICAL RESULTS
The model is estimated by a well-known time series technique suggested by Johansen (1988). The results are shown in Table 2, suggesting the following relationship between the FDI and its locational determinants:

$$FDI = -22.97 + 2.18(Y) + 1.34(\Delta Y) - 0.45(\Delta E)$$

$$+ 1.46(I) + 1.72(X/M) - 0.024(R) \qquad (2)$$

In line with previous literature, the size of the domestic market is positively related to foreign direct investment inflows. As the size of the host country market increases, so does the number of customers and opportunities for foreign investors. Since FDI is mostly in the form of physical investment, foreign investors would prefer host countries with better infrastructure. This explains the positive sign for the variable L(I). The attractiveness of the host country market also affects the FDI inflows positively and significantly. Implementation of more liberal economic policies would certainly attract more foreign investments. As openness of the economy to free trade requires removing or decreasing the

barriers to exports and imports, this would facilitate the imports of raw materials or

TABLE 2
Estimation Results

Unconditional Model (Dependent variable is LFDI)

	CONSTANT	LY	ΔY	ΔE	LI	L(X/M)	R
Coefficient	-60.440	5.088	0.949	-2.246	4.252	2.730	-0.030
LR tests[1]	130.130	136.520	88.040	108.970	129.360	49.740	13.590

Diagnostic vector tests[2]

F_{AC} = NA; χ^2_{NORM}(14) = 21.75*; χ^2_{HET} = NA; R^2(LM) = 0.59

Conditional Model[3] (Dependent variable is LFDI)

	CONSTANT	LY	ΔY	ΔE	LI	L(X/M)	R
Coefficient	-22.970	2.182	1.343	-0.453	1.461	1.724	-0.024
LR tests[1]	104.740	127.230	123.590	49.180	79.660	21.220	9.700

Diagnostic tests

	LFDI	LY	LI	L(X/M)
F_{AC} (1,9)	0.002	0.012	0.713	0.090
F_{ARCH} (1,8)	0.198	0.140	0.246	0.506
χ^2_{NORM} (2)	0.281	0.882	2.895	1.448

Vector tests

F_{AC} (16,9) = 1.63; χ^2_{NORM}(8) =1.46; χ^2_{HET} = NA; R^2(LM) = 0.88; F(32,27) = 521.78**

Notes:
[1]Critical values for LR significance tests: χ^2(7) = 18.475 (1%) and χ^2(7) = 14.067(5%).
[2]F_{AC} stands for Breusch-Godfrey serial correlation test, F_{ARCH} for autoregressive conditional heteroscedasticity test, χ^2_{HET} for White's functional form/heteroscedasticity test and χ^2_{NORM} for White's normality test. The diagnostic tests for the individual equations are given for the conditioned model only.
[3]Conditioned model on ΔY, R, and ΔE, assuming them as exogeneous variables..

intermediate goods as well as the exports of finished goods. Exchange rate instability appears to have a negative impact on FDI inflows. A highly volatile currency would discourage foreign investors to engage in FDI in Turkey. Finally, the empirical results suggest a negative but no significant effect on FDI of economic instability, as measured by interest rate.

POLICY IMPLICATIONS
From a public policy perspective, the findings of this study signify the desirability of taking necessary steps to attract additional foreign investments. Overall, the implementation of the liberalization process orchestrated an increase in actual inflows of foreign direct investment in Turkey from a negligibly low level of $158 million in 1985-1986 to a comfortable over $1 billion in 1997-1998. This can be construed as a sign that foreign investors have responded favorably to the liberalization policies.

While the policies of the free market economy have created this recent surge in foreign investments, Turkey still suffers from its relatively poor record of FDI compared with that of the newly emerging markets of the Far East and Latin America. However, to facilitate continued increase in FDI, liberalization policies have to correspond with the improvement of basic infrastructure, do away with the protectionist sentiment, and instituting macroeconomic stability by strictly adhering to its structural transformation. To this end, in

January 2000, the Turkish Government launched a comprehensive program of structural reforms to eliminate double-digit inflation and restructure banking, agriculture, and backward state-owned enterprises. Turkey has recently won the status of full candidate for membership of the European Union (EU). Together with its promising IMF standby agreement, the EU membership is expected to provide Turkey with the chance of becoming a major recipient of FDI, rivaling Greece and Portugal. With his accession to the EU, Turkey has to harmonize his investment policies in accordance with those of other EU members and institute the union's trade and competition rules into his economy. This would require Turkey to compete for FDI on equal terms with other members in the EU, which will in turn give rise to increased productivity, improved infrastructure, and macroeconomic stability including price and exchange rate stability.

In creating enabling environment for FDI, the Turkish Government should also accelerate the privatization program and the development of infrastructure projects by removing obstacles that slow down the process. The Government could help set the example for encouraging FDI by pushing through its bureaucracy long-delayed deals transferring energy generation and distribution to private operators. While Turkey has taken significant strides in simplifying foreign investment procedures, it continues to screen foreign investment. Although its screening mechanism is routine and nondiscriminatory, it can also be an impediment to the free flow of capital. In sum, to attract FDI of a magnitude similar to that in other emerging markets depends largely on Turkey's ability to complete long-overdue structural reforms in areas ranging from banking to agriculture.

CONCLUSIONS

Drawing on a time series analysis, it is was found that host country market size, openness of the economy to foreign trade, physical infrastructure of the host country, attractiveness of the host country market had a positive effect, but exchange rate instability of domestic currency had a negative effect on realized FDI in Turkey. The effect of economic instability was negative but not statistically significant. Hence, the evidence from this study supports the contention that while Turkey offers several location advantages to foreign investors, the lack of exchange rate and economic stability has hindered its efforts to harbor much higher volume of FDI.

Novelties of this study are twofold. First, while most of the studies cited in the literature suggest a positive and significant relationship between FDI inflows and the market size of the host country, they usually fail to establish a statistical relationship between FDI inflows and the other variables such as exchange rate instability and overall economic instability, infrastructure, and the openness of the host country economy. This may be explained, to a great extent, by such factors as nature of data and data process, estimation technique, sample chosen, and country's own characteristics. Secondly, unlike the other works drawing on cross-sectional data, using time series data for a single country warrants a useful approach to capture relationships between FDI and its locational determinants.

As with all empirical research there are important limitations to this study. First, unavailability of data on such important variables as sector, country of origin, type of investment (e.g. export-oriented versus host market-seeking) has hindered us to control their impact on FDI inflows in Turkey. Second, due to relatively small sample size, a caution has to be exercised when interpreting the results. However, the results, at least, can be used to establish the fact that these factors might influence foreign investors' decisions in choosing a location in the estimated directions. As much of the discussion on FDI in Turkey is largely in the nature of reasoned speculation rather than conclusions based on an examination of facts and relevant data, it is expected that the findings of this study will provide a basis for future studies.

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