THE RISK FACTORS ASSOCIATED WITH INVESTING IN AN EMERGING EQUITY MARKET DURING THE EU MEMBERSHIP PROCESS

Eric Girard, Siena College
Halil Kiymaz, Rollins College

ABSTRACT

This paper identifies the risks associated with investing in the Turkish stock market. We find that Turkish firms are more volatile than firms in countries that have recently joined the EU (our control group) and that the excess volatility is significantly associated with higher financial and economic risks rather than fundamentals. Additionally, firms' fundamentals are as important as country risk factors in explaining stock risk premiums for the control group, while the combined effect of country risk scores has a greater impact on risk premiums than firms' fundamentals alone for Turkish firms. Also, while Turkish stocks are sensitive to all country risk factors — economic conditions, international openness, investment profile, conflicts, and social tensions — stocks of the control group are mostly affected by only two factors, namely social tensions and economic conditions. Finally, some risks have become less relevant as a result of the changes in legal, political, and economic policies that occurred from 1999 to 2004 (the candidacy period for EU membership). Overall, Turkey has been quite successful at pursuing reforms since it began its candidacy for the EU. It has liberalized its political system and relaxed restrictions on freedom. It has also reduced hyperinflation, strengthened its currency, lowered interest rates, and provided more stable growth in GDP. However, political stability and financial and economic development appear to be issues for Turkey in its quest to become an EU member.

JEL: F3; G1; N2

INTRODUCTION

Turkey formally applied to join the European Community (now, the European Union) on April 14, 1987. It was officially recognized as a candidate for membership on December 10, 1999. The hope of joining the EU has driven major reforms in Turkey, including economic liberalization, human rights protection, and greater civilian oversight of the military. In 2002, the EU outlined the political and economic conditions that Turkey would have to satisfy before formal accession talks could begin. The criteria required that Turkey have a functioning market economy and stable institutions that guarantee democracy, the rule of law, and human rights.

Since commencing its official candidacy for membership in the EU, Turkey has pursued reforms involving liberalizing the political system and relaxing restrictions on freedom and human rights. It has abolished the death penalty, adopted measures to promote independence of the judiciary, and reformed the prison system. In addition, Turkey has modified its penal legal environment. Military and police powers have been somewhat lessened and the administration of justice has been strengthened. Turkey has also started economic and financial reforms leading to reduced hyperinflation, a more fairly valued currency, lower interest rates, and a decreasing amount of past-due loans which used to account for more than 20 percent of all banking system credit. With $39.5 billion of assistance from the International Monetary Fund, it has shrunken the pension system, downsized the public sector, and reformed bankruptcy law. By mid-2004, inflation was reduced to 13 percent, its lowest level in almost 30 years, and Turkey's GDP growth for 2004 was around 5 percent.

However, the EU still perceives Turkey as too unstable politically, and too underdeveloped financially and economically to become a member. Turkish general opinion does not perceive positively the EU's hesitation to incorporate their country into the union. Ten countries (the Greek part of Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia) started their candidacy for membership in the EU around the same time as Turkey; all of them joined the European Union in May of 2004. Turkish opinion widely believes that the underlying reason for rejection is associated with cultural differences rather than economic, political and financial weaknesses.

The purpose of this paper is to shed some light on the reasons behind EU's decision by identifying the risks associated with investing in the Turkish stock market. Indeed, capital markets are mirrors of the expected changes in the political, economic and financial landscape of a country[1] . If cultural differences are at the source of the discord between Turkey and the EU, then the excess volatility found in the Turkish capital market compared to the new EU members' capital markets during their common candidacy period should be driven by differences in firms' fundamentals rather than by relative political, financial and economic underdevelopment.

We first investigate the source of excess volatility found in a portfolio of 78 Turkish firms compared to a portfolio of 176 stocks traded in a control group comprised of the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia (8 of the 10 new EU members) during their candidacy period. We notice that Turkish firms are indeed much more volatile and that the excess volatility can be significantly associated with higher financial and economic risks rather than fundamentals. We further examine the relationship between risks and stock returns using a multifactor extension of the CAPM and show that firms' fundamentals are as important as country risk factors in explaining stock risk premiums for our control group, while the combined effect of country risk scores has a greater impact on risk premiums than firms' fundamentals alone for Turkish firms. Also, while Turkish stocks are sensitive to all country risk factors — economic conditions, international openness, investment profile, conflicts, and social tensions — stocks of the control group are mostly affected by only two factors, namely social tensions and economic conditions.

Finally, some risks have become less relevant as a result of changes in legal, political, and economic policies that occurred from 1999 to 2004. We conclude that Turkey has been quite successful at pursuing reforms since commencing its candidacy for membership in the EU. It has liberalized its political system and relaxed restrictions on freedom. As well it has reduced hyperinflation, strengthened its currency, lowered interest rates, and provided more stable growth in GDP. However, political instability and financial and economic underdevelopment appear to be major issues for Turkey in its quest to become an EU member. The remainder of the paper is organized as follows. Section 2 briefly discusses the relevant literature. Data selection, research methodology, and empirical models are described in Section 3. Section 4 provides analysis and interpretations of the empirical findings and Section 5 concludes the paper.

LITERATURE REVIEW

Finance theory suggests that pricing of assets always starts by evaluating the risks involved with investing in them. When it comes to stocks traded in emerging markets, finance literature suggests that risks are both fundamentals-related and country-specific. For instance, Erb, Harvey and Viskanta (1995) show how a country risk rating model explains the return generating process in world markets. The authors use composite risks such as political, economic and financial risk ratings and country credit ratings from the International Country Risk Guide (ICRG) and explore how these are correlated with wealth. They also observe that a lower rating (higher risk) is associated with higher expected returns. In a related article, Erb, Harvey and Viskanta (1996b) investigate how ICRG composite risk scores (political, financial and economic risk) explain the cross-sections of expected returns on IFC country indexes. They find that

economic and financial risks convey the most information about expected returns in developed markets, while political risk has some marginal explanatory power in emerging equity markets. They also investigate the relationship between the world beta, the index volatility, one fundamental attribute at the country level (index aggregate book-to-price value) and composite risk scores. Their findings suggest that composite risk scores are highly correlated with country fundamentals. Similar conclusions have been reached by other authors. For instance, Oijen and Perotti (2001) indicate that changes in political risk are a priced factor and tend to have a strong effect on local stock market development and excess returns in emerging economies. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) find that countries with lower quality of legal rules and law enforcement have smaller and narrower capital markets. Demirgüç-Kunt and Maksimovic (1998) show that firms traded in countries with high ratings for the effectiveness of their legal systems are able to grow faster by relying more on external capital.

At the firm level, empirical research has shown that some fundamental firm-specific factors (such as size or book value to market value of equity) are more suited to describe the cross-sections of stock returns. Many studies have shown that high beta, small, value and high momentum firms have higher cross-sectional risk premiums in developed markets (Chan, Hamao, and Lakonishok, 1991; Aggarwal, Hiraki, and Rao, 1992; Fama and French, 1992 and 1996). As for the risks explaining the return-generating processes of stocks traded in emerging capital markets, findings are dichotomous. While Fama and French (1998), Patel (1998) and Rouwenhorst (1999) argue that risk premiums in emerging markets exhibit the same characteristics as in developed markets (i.e., significant momentum, small stocks outperform large stocks and value stocks outperform growth stocks) others report mixed results for the relationship between fundamental attributes and returns in emerging markets. These include Claessens, Dasgupta, and Glen (1995, 1998), Lyn and Zychowicz (2004), Ramcharran (2004) and Girard and Omran (2006). In some instances the above authors find positive relationships between size and returns as well as a positive relationship between price-to-book value and returns, contrary to the conventional belief that small and value firms are riskier. Several arguments may account for these findings. Daniel and Titman (1997) propose that firms' characteristics explain the return premium — i .e., a value premium will exist in emerging markets if value stocks are less liquid than growth stocks. Harvey and Roper (1999) argue that market growth has led to the mobilization of new capital and an increase in the number of firms rather than an increase in value. Furthermore, due to either the restrictions on debt financing or the immature debt markets, small firms have a capital structure comprised principally of equity, while larger firms with their international exposure can more easily access leverage. For instance, Bolbol and Omran (2005) and Girard and Omran (2006) indicate that only large firms have higher leverage ratios in Arab markets. Claessens, Dasgupta, and Glen (1998) also suggest that market microstructure causes these substantial differences and that regulatory and tax regimes force investors to behave differently in nascent markets. The authors also hypothesize that the positive relationships between returns and size and market-to-book value can be attributed to the segmentation of financial markets.

In a recent article, Girard and Omran (2006) investigate how firms' fundamentals and country risk ratings provide an explanation for the return-generating process of individual stocks traded in emerging markets. Their study shows that a constant beta is not a good proxy for risk in thinly traded emerging markets, and firms' fundamentals and country risk rating factors are important in explaining the cross-sections of stock returns. Furthermore, they suggest that a pricing model including firms' fundamentals and country risk rating factors has significantly better explanatory power than either a CAPM, or a model which only includes a firms' fundamentals, or a model based only on country composite risk ratings. The authors conclude that financial transparency and political instability are still powerful obstacles to investing in emerging markets.

DATA AND METHODOLOGY

The sample consists of firms traded at the Istanbul Stock Exchange during the period September 1988 to June 2004. Monthly indexes, stock prices and firms' fundamentals are obtained from the S&P/IFC Emerging Markets Data Base[2] . The country risk ratings are obtained from the ICRG[3] managed by the Political Risk Group. ICRG country risk scores are grouped into three categories, which consist of 12 political risk, 5 financial risk and 5 economic risk scores. ICRG scales rank risks from a high score, indicating a low risk, to a low score, indicating a high risk. We retrieve the Turkish IFCG market indexes[4], individual firms' monthly stock returns, market capitalization and price-to-book values. We choose monthly prices in US dollars to circumvent the problem of high inflation. All monthly indexes and stock returns are then deflated[5] using the US 90-day T-bill rate in the following formulae:

$$R_{i,t,deflated} = \frac{\left(\mathrm{r_{i,t}} - \mathrm{r_{f,t}}\right)}{\left(1 + \mathrm{r_{f,t}}\right)} \tag{1a}$$

$$R_{m,t,deflated} = \frac{\left(\mathrm{r_{m,t}} - \mathrm{r_{f,t}}\right)}{\left(1 + \mathrm{r_{f,t}}\right)} \tag{1b}$$

where $r_{i,t}$ and $r_{m,t}$ are the monthly stock and market returns[6] , while $r_{f,t}$ is the monthly US T-bill rate.

We compute local betas by regressing each stock dollar's returns on a country index to which the firm belongs as in Rouwenhorst (1999). This equally weighted country index is comprised of dollar-denominated stock returns averaged each month[7]. One lag of the equally weighted country index is included to allow for a delayed response due to non-synchronous trading. Betas are computed with a minimum of two years and a maximum of five years of historical monthly returns. Each stock return is matched by a monthly size (market capitalization in US dollars) and a price-to-book value (PB). The total number of Turkish firms included in the IFC is 91. However, out of the original sample, 13 stocks had less than 24 months of data; hence, we have to exclude those firms from the analysis. Our sample consists of 78 firms traded from September 1988 to June 2004.

We investigate the cross-sections of risk premiums of stocks traded in the Turkish capital market with k-risk factors comprised of three groups of firm risk components (beta, the logarithm of a firm's market capitalization, and the logarithm of price-to-book value) and 22 risk scores (12 ICRG political risk scores, 5 ICRG economic risk scores, and 5 ICRG financial risk scores). Our approach is similar to that of Girard and Omran (2006). We follow a principal component analysis methodology to reduce the factor loading, and identify the significance of each risk factor's effects on stock risk premiums. Finally, we test the information content of our multifactor expression as compared to a simpler nested model — a three-factor composite risk model. In order to avoid arbitrary weighting of risk scores by using a composite measure, we utilize a principal component analysis to select the main risk drivers within a risk category [8]. Our fundamentals and country risk factor model should have each asset return linearly related to *k* factors plus its own idiosyncratic disturbance as follows:

$$R_{\ i,deflated} = b_0 + b_1\beta_i + b_2\ \log(PTBV) + b_3\ \log(size) + \sum_{i=1}^{k}\ \lambda_i \widetilde{Z}_i\ + \varepsilon_i \tag{2}$$

where $\mathrm{R_{i,deflated}}$ is a vector of monthly deflated stock returns; $\mathrm{b_1}$, $\mathrm{b_2}$ and $\mathrm{b_3}$ are the risk premiums associated with beta, the price-to-book ratio and the market capitalization of a stock; Z_i is a vector of common country risk score factors determined using a principal component analysis; and λ_i is a vector of risk premiums associated with the country risk score factors. Finally, we compare equation 2 to a model proposed in the literature at an aggregate level and on a country basis. As in Erb, Harvey and Vistanka

(1996a), a country risk composite model relates return to political risk (PR), economic risk (ER), and financial risk (FR), i.e.,

$$R_{i,deflated} = \lambda_0 + \lambda_1 Ln(PR) + \lambda_2 Ln(ER) + \lambda_3 Ln(FR) + \varepsilon_i \quad (3)$$

We use three tests[9] to compare the explanatory power of equation 3 to that of equation 2. These include the Davidson and MacKinnon test (1981), the posterior odds ratio and a partitioned residual analysis.

EMPIRICAL RESULTS

We first provide information about the monthly IFCG index's return, the monthly standard deviation of the index return, the market capitalization, the price-to-book ratio, four composite macro risk ratings, and twenty-two individual macro risk ratings[10] (see Table 1). Metrics are reported over three periods: the overall sample period (1988:09 to 2004:06), a period prior to candidacy for EU membership (1988:09 to 1999:11), and the current period of candidacy for EU membership (1999:12 to 2004:06). The average monthly index return is 0.65% during the overall sample period. It decreased from 0.88% (1988-1999) to 0.27% (1999-2004). The average monthly standard deviation is 16.33% for the overall period; it increased from 15.91% for the first period to 17.02% for the second period. Hence, Turkish stocks appear to be providing less and have become riskier. The average market capitalization of the index is $40 billion and it has increased from $26 billion to $65 billion. The number of firms traded at the ISE increased from 164 in the pre-candidacy period to 290 during the candidacy period. Turkish stocks are traded at 4.66 times their book values during the overall period.

This figure decreased from 5.16 during the pre-candidacy period to 3.82 during the candidacy period. This is an indication of how Turkish stocks have become riskier and value-oriented. While composite risk ratings (50 percent weighted in political risk rating) and political risk ratings are higher during the candidacy period compared to the pre-candidacy period, financial and economic risk ratings are lower during the latter period. This indicates that Turkey has improved its political landscape but has failed to do the same at a financial and economic level. More specifically, issues related to government stability, investment profile, trade deficit, inflation and stability of GDP growth have dramatically improved from the pre-candidacy to the candidacy period. However, risks associated with socioeconomic conditions, corruption, democratic accountability, ethnic tensions and debt servicing have slightly increased from one period to the other.

The descriptive statistics of the 78 firms used in our analysis are presented in Table 2. The final sample consists of 7,806 monthly observations for firms traded from 1988:09 to 2004:06. The median monthly return is -0.04 percent and the median monthly standard deviation is 0.29 percent. Firms have a median market capitalization of $190.031 million and a median price-to-book ratio of 3.494. By EU standards, the firms traded on the Turkish capital market are relatively small and their returns are extremely volatile

We start our analysis by comparing Turkey's risk ratings during the candidacy period with those of two groups of countries. Group 1 is comprised of the 15 EU member states as of April 2004 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom). Group 2 is comprised of the ten countries that joined the EU in May of 2004 (the Greek part of Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia). Composite, political, financial and economic risk ratings are much lower in Turkey as compared to groups 1 and 2. For example, Turkey has the lowest ratings in 9 out of 12 political risks, 2 out of 5 economic risks, and 2 out of 5 financial risks. Out of the remaining 9 risk ratings, 7 are in the lower range of group 2 and the remaining 2 are close to medians of groups 1 and 2. Thus, during the candidacy period for joining the EU, Turkey shows greater political,

financial and economic risks as compared to the norm of the 15 EU members. Furthermore it has lower ratings compared to the group of 10 countries that joined the EU in May of 2004 (Table 3).

Table 1: The Turkish Capital Market: Risk and Return from January 1988 to June 2004

	Overall Period	Pre-candidature[a] Period	Candidature[a] Period:
Median # of companies traded	229	164	290
Median # of companies included in IFCG	44	38	53
Average IFCG Turkey Return	0.65%	0.88%	0.27%
IFCG Turkey Standard Deviation	16.33%	15.91%	17.02%
IFCG Turkey Market Value	40,374.69	25,611.10	64,980.67
IFCG Turkey Price-to-Book Ratio	4.66	5.16	3.82
Composite Risk Rating	56.66	56.31	57.25
Political Risk Rating	56.29	54.88	58.63
Financial Risk Rating	29.57	29.71	29.34
Economic Risk Rating	27.35	27.88	26.45
Political Risk Ratings Variables			
Government Stability	7.33	6.45	8.80
Socioeconomic Conditions	3.96	4.04	3.83
Investment Profile	6.42	5.42	8.09
Internal Conflict	7.19	6.74	7.95
External Conflict	9.24	9.30	9.14
Corruption	2.65	2.82	2.38
Military in Politics	3.23	3.58	2.64
Law & Order	3.74	3.59	3.99
Religious Tensions	3.71	3.40	4.22
Ethnic Tensions	2.26	2.42	2.00
Democratic Accountability	4.22	4.59	3.60
Bureaucracy Quality	2.35	2.56	2.00
Financial Risk Rating Variables			
Budget Balance	3.58	4.06	2.79
Current Account as % of GDP	8.40	6.75	11.14
Current Account as % of XGS	11.73	11.65	11.86
Debt Service	6.38	6.62	5.99
Exchange Rate Stability	5.31	5.31	5.32
Economic Risk Rating Variables			
Foreign Debt	4.91	4.78	5.12
GDP Growth	5.84	4.84	7.50
GDP per Head of Population	1.89	2.01	1.68
Inflation	2.57	2.11	3.34
International Liquidity	0.60	0.32	1.06

Composite Risk Rating: ½ of the sum of political, financial and economic risk ratings. Politic Risk Rating is the sum of the following risk ratings: Government Stability: risk associated with a government's ability to carry out its declared program(s), and its ability to stay in office. Socioeconomic Conditions: risk associated with the general public satisfaction with the government's economic policies. Investment Profile: risk associated with expropriation, taxation, repatriation of capital, and labor costs. Internal Conflict: risk associated with political violence and its impact on governance. External Conflict: risk to both the incumbent government and inward investment. Corruption risk: risk associated with corruption within the political system. Military in Politics: risk associated with military involvement in politics. Religious Tensions: risk associated with the domination of a single religious group or the suppression of religious freedom. Law and Order: risk associated with the weakness and partiality of a legal system, and the lack of observance of the law. Ethnic Tensions: risk associated with tensions within a country attributable to racial, nationality, or language divisions. Democratic Accountability: risk associated with a government that is not responsive to its people. Financial Risk Rating is the sum of the following risk ratings: Foreign Debt as a % of GDP: risk associated with gross foreign debt in a given year, converted into US dollars. Foreign Debt Service as a % of Exports of Goods and Services: risk associated with foreign debt service per year, in $US. Current Account as a % of Exports of Goods and Services: risk associated with the annual current account deficit, in $US. Net International Liquidity as Months of Import: risk associated with the total estimated official reserves for a given year, in $US. Exchange Rate Stability: risk associated with the appreciation/ depreciation of a currency against the $US (against the DM for the US). Economic Risk Rating is the sum of the following risk ratings: GDP Per Head: Risk associated with a low GDP per head for a given year, converted into $US. Real GDP Growth: risk associated with a % increase or decrease in the estimated GDP, at constant 1990 prices. Annual Inflation Rate: Risk associated with annual inflation rate. Budget Balance as a % of GDP: Risk associated with a government budget deficit for a given year in the national currency. Current Account as a % of GDP: risk associated with the current account balance deficit for a given year, converted into $US.[a:] Turkey was officially recognized as a candidate for membership on December 10, 1999

Table 2: Companies Traded on the Turkish Capital Market: Risk and Return September 1988 -June 2004

Name	Start	End	Obs.	Return	Stdev	Beta	MV	PB
Adana Cimento-A	199302	200210	117	-0.048	0.278	0.963	62.511	10.509
Ak Enerji	200112	200406	31	-0.059	0.314	1.061	295.377	1.469
Akal Tekstil	199402	199910	69	-0.069	0.280	1.162	55.177	2.553
Akbank	199101	200406	162	-0.044	0.258	0.966	2,596.994	3.345
Akcansa	199611	200406	92	-0.039	0.273	0.758	411.752	3.657
Akcimento	198809	199609	97	-0.051	0.377	0.920	100.121	3.598
Aksa	199302	200406	77	-0.070	0.341	0.219	392.508	4.346
Aksigorta	199612	200406	91	-0.026	0.274	1.137	337.093	4.014
Aktas Electrik	199612	200009	46	-0.032	0.274	0.650	362.524	17.511
Alarko Gayrimenkul	199712	200210	59	-0.022	0.213	0.855	41.013	0.911
Alarko Holding	200012	200406	43	-0.011	0.219	1.014	291.905	5.048
Alcatel-Bearer	199602	200310	93	-0.042	0.345	1.196	154.629	8.323
Anadolu Efes Biracilik	199402	200406	125	-0.037	0.279	0.635	657.434	11.542
Anadolu Isuzu	199712	200310	71	-0.033	0.309	1.163	115.332	4.144
Arcelik	198902	200406	185	-0.032	0.275	1.058	897.736	5.172
Aselsan-Bearer	199602	200406	101	-0.027	0.265	1.012	174.939	3.280
Aygaz	199302	200406	137	-0.043	0.255	0.831	402.865	5.275
Bagfas	198809	200210	170	-0.026	0.310	0.979	78.707	2.896
Bosch Fren-Bearer	199602	200210	81	-0.005	0.192	0.596	33.149	4.614
Brisa	198809	200406	190	-0.025	0.317	0.970	243.432	2.998
Celebi Hava Servisi	199712	200406	79	-0.055	0.357	0.781	70.045	6.528
Celik Halat	198809	200210	170	-0.045	0.286	1.012	26.000	2.867
Cimentas	199402	199710	45	-0.057	0.270	0.474	127.802	4.407
Cimsa	198809	200406	190	-0.044	0.332	0.810	157.980	3.407
Cukurova Elektrik	198809	200009	145	-0.013	0.251	0.726	469.724	10.261
Dardanel-Bearer	199602	200110	69	-0.070	0.298	0.990	30.074	1.389
Dogan Holding	199402	200406	125	-0.060	0.369	1.326	517.939	3.561
Dogan Yayin Holding	200012	200406	43	-0.019	0.331	1.442	494.086	2.748
Eczacibasi Ilac	199101	200406	162	-0.053	0.329	1.103	189.974	2.974
Eczacibasi Yatirim	199302	200210	117	-0.048	0.359	1.115	57.452	2.898
Ege Bira	199302	199710	57	-0.065	0.319	0.460	562.801	13.248
Erdemir	198809	200406	190	-0.036	0.339	0.767	795.729	1.928
Goodyear	198809	200110	158	-0.051	0.314	0.988	138.496	5.526
Guney Bira	199402	199910	69	-0.052	0.290	0.574	84.265	6.309
Hurriyet Gazette	200012	200406	43	-0.023	0.311	1.288	424.014	2.818
Ihlas Holding	199612	200109	58	-0.079	0.301	0.890	270.407	3.555
Is Gayrimenkul	200012	200406	43	-0.024	0.205	0.928	170.366	0.752
Izmir Demir Celik-Bearer	199502	200210	93	-0.046	0.293	1.064	83.057	0.867
Kartonsan	198809	200110	158	-0.020	0.228	0.628	100.338	2.444
Kepez Elektrik-Bearer	199602	200009	56	0.006	0.224	0.947	157.163	13.757
Koc Holding	198902	200406	185	-0.032	0.303	1.151	2,055.346	10.527
Koc Yatirim	199302	199708	55	-0.034	0.257	0.773	180.417	9.332
Kordsa	198809	200406	190	-0.040	0.273	0.861	163.272	3.240
Koruma Tarim	198809	199312	64	-0.043	0.287	0.801	13.901	1.984
Mardin Cimento	199302	200210	117	-0.054	0.275	0.858	50.223	3.359
Medya Holding	199612	200103	52	-0.011	0.289	0.779	175.669	3.763
Mensucat Santral	198902	199312	59	-0.070	0.296	0.811	90.697	1.786
Migros	199402	200406	125	-0.063	0.324	0.708	725.510	15.146
Net Holding	199612	200210	71	-0.066	0.327	1.242	67.124	1.158
Net Turizm	199712	200210	59	-0.097	0.360	1.184	39.944	1.612
Netas	199402	199710	45	-0.040	0.220	0.853	357.578	5.706
Netas Telekom	200012	200406	43	-0.037	0.235	1.143	190.088	3.236
Otosan	198902	200406	185	-0.029	0.375	1.061	618.540	7.194
Petkim	199101	200406	162	-0.032	0.402	0.998	1267.614	2.271
Petrol Ofisi	199302	200211	118	-0.039	0.349	0.939	1,435.994	11.018
Rabak	198809	199312	64	-0.037	0.317	1.075	17.721	1.581

Name	Start	End	Obs.	Return	Stdev	Beta	MV	PB
Raks Elektronik-Bearer	199502	199910	57	-0.078	0.411	0.246	65.671	1.821
Sabanci Holding	199712	200406	79	-0.037	0.285	1.200	3,264.424	4.578
Sarkuysan	198809	200310	182	-0.033	0.293	1.007	75.665	3.434
Sasa Dupont	199712	200406	79	-0.050	0.319	1.019	221.024	2.119
Sifas-Bearer	199602	199910	45	-0.082	0.259	0.640	20.828	1.443
T. Demir Dokum	198809	199710	110	-0.030	0.269	1.000	141.138	5.017
T. Garanti Bankasi	199101	200406	162	-0.037	0.303	1.187	1287.168	2.667
T. Is.bank (C)-Bearer	199602	200406	101	-0.032	0.311	1.068	5,020.097	4.838
T. Sise Cam	199101	200406	162	-0.050	0.310	1.216	434.984	3.917
T.Is Bank	199101	199312	36	-0.038	0.328	1.315	559.306	1.545
Tansas	200112	200406	31	-0.026	0.199	1.037	228.763	0.926
Tat Konserve-Bearer	199502	200210	93	-0.060	0.282	0.861	127.668	4.890
THY	199402	200406	125	-0.038	0.298	1.146	1,689.879	9.946
Tire Kutsan-Bearer	199602	200210	81	-0.052	0.261	0.611	42.821	2.359
Tofas Oto Fab	199302	200406	137	-0.051	0.304	0.937	822.434	5.253
Tofas Oto Tic	199302	200105	100	-0.067	0.351	1.121	100.658	9.554
Trakya Cam	200112	200406	31	-0.019	0.175	0.667	366.524	2.155
Tupras	199302	200406	137	-0.029	0.333	1.082	2,218.224	13.460
Turkcell	200008	200406	47	-0.036	0.280	1.124	4310.721	12.524
Ucak Servisi-Bearer	199502	200310	105	-0.060	0.534	1.129	86.025	7.378
Vestel	200012	200406	43	-0.088	0.591	0.761	420.424	1.775
YKB	199101	200406	162	-0.042	0.304	1.292	1453.307	2.060
Median				-0.040	0.298	0.984	190.031	3.494

Table 3: Comparison of Risk Ratings Between EC Member States Turkey (Dec 1999[a] - Jun 2004)

	Group 1[b]			Group 2[c]			Turkey
Risk Ratings	**Max.**	**Med.**	**Min.**	**Max.**	**Med.**	**Min.**	**Med.**
Composite Risk Rating	90.4	83.4	75.3	79.9	75.8	74.0	57.2
Political Risk Rating	93.5	88.0	77.9	86.5	77.7	71.4	58.6
Financial Risk Rating	42.3	41.8	34.1	42.8	39.0	36.1	29.3
Economic Risk Rating	45.4	38.9	36.6	39.6	38.6	33.1	26.5
Government Stability	10.6	9.4	8.6	10.4	9.0	7.3	8.8
Socioeconomic Conditions	10.8	9.1	6.9	9.7	6.2	5.1	3.8
Investment Profile	11.6	10.8	10.3	10.8	10.2	9.2	8.1
Internal Conflict	12.0	11.3	8.4	11.4	11.0	8.9	8.0
External Conflict	12.0	11.1	8.8	11.6	10.9	8.3	9.1
Corruption	6.0	4.3	2.7	4.0	3.4	2.5	2.4
Military in Politics	6.0	5.0	4.7	6.0	5.5	4.5	2.6
Law & Order	6.0	5.0	3.0	5.3	4.6	4.0	3.9
Religious Tensions	6.0	5.0	4.6	6.0	5.0	4.1	4.2
Ethnic Tensions	6.0	4.0	2.8	6.0	3.6	2.2	2.0
Democratic Accountability	6.0	5.9	4.1	6.0	5.6	5.0	3.6
Bureaucracy Quality	4.0	3.5	2.7	4.0	3.0	2.3	2.0
Budget Balance	9.2	7.6	6.7	7.8	6.0	4.6	2.8
Current Account as % of GDP	13.9	12.0	9.4	12.3	10.0	9.2	11.1
Current Account as % of XGS	13.1	12.4	10.1	12.1	11.2	10.5	11.9
Debt Service	10.0	8.0	5.0	9.3	8.9	6.0	6.0
Exchange Rate Stability	9.7	9.2	9.0	9.9	9.2	8.7	5.3
Foreign Debt	10.0	8.5	4.6	9.8	7.0	3.5	5.1
GDP Growth	9.3	7.3	6.8	9.2	8.6	7.5	7.5
GDP Per Head of Population	5.0	4.4	3.8	3.8	2.5	1.9	1.7
Inflation	10.0	9.6	8.8	9.7	8.9	7.4	3.3
International Liquidity	3.3	1.5	0.3	3.5	2.1	1.5	1.1

[a] Turkey was officially recognized as a candidate for membership on December 10, 1999 .[b] Group 1 is composed of the 15 EC member states as of April 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom. [c] Group 2 is composed of the ten countries that joined the EU in May of 2004: Cyprus (Greek part), the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

We compare 78 Turkish median monthly stock returns, median monthly fundamentals (price-to-book value, beta and size), and monthly standardized composite risk ratings (economic, financial and political risk ratings) with those of a portfolio made of 176 stocks traded in the countries making group 2 -- 28 Czech, 11 Estonian, 18 Hungarian, 17 Latvian, 26 Lithuanian, 43 Polish, 16 Slovakian, and 17 Slovenian stocks--during the EU candidacy period (1999-2004)[11]. To investigate whether the difference in fundamentals and composite ratings between Turkey and a portfolio containing 176 stocks traded in the 8 other markets explains the excess volatility observed in the Turkish market as compared to these other markets, we estimate the following equation:

$$\begin{aligned}(R_{Turkey,deflated} - R_{Group\,2,deflated})^2 = a_0 \\ + a_1(\beta_{Turkey} - \beta_{Group\,2}) \\ + a_2[\log(PTBV_{Turkey}) - \log(PTBV_{Group\,2})] \\ + a_3[\log(size_{Turkey}) - \log(size_{Group\,2})] \\ + a_4(SEconR_{Turkey} - SEconR_{Group\,2}) \\ + a_5(SFinR_{Turkey} - SFinR_{Group\,2}) \\ + a_6(SPolR_{Turkey} - SPolR_{Group\,2}) + \varepsilon_i\end{aligned} \quad (4)$$

where $R_{Turkey,deflated}$ and $R_{Group2,deflated}$ are each month's median deflated stock returns (69 stocks for Turkey and 176 stocks for group 2); β_{Turkey} and β_{Group2} are each month's median betas; $PTBV_{Turkey}$ and $PTBV_{Group\ 2}$ are each month's median price-to-book value; $\text{size}_{\text{Turkey}}$ and $\text{size}_{\text{Group2}}$ are each month's median market capitalization; $SEconR_{Turkey}$ and $SEconR_{Group2}$ are each month's median standardized economic risk ratings; $\text{SFinR}_{\text{Turkey}}$ and $\text{SFinR}_{\text{Group2}}$ are each month's median standardized financial risk ratings; and $SPolR_{Turkey}$ $SPolR_{Group2}$ are each month's median standardized political risk ratings. Results are reported in Table 4 suggesting that differences in economic and financial risk ratings are significantly related to the excess volatility. Furthermore, differences in fundamentals do not explain excess volatility. Thus, excess volatility is mainly driven by differences in relative financial and economic differences between Turkey and these countries. These findings support the argument that the EU's rejection of Turkey into its membership stems from concerns over Turkey being financially and economically less developed, rather than cultural differences.

Next, we investigate the difference in sensitivity to fundamentals and composite ratings between Turkey and a portfolio containing 176 stocks traded in the 8 other markets during their common candidacy period for becoming members of the EU. We first conduct a principal component analysis to select the risk scores by factors[12]. Table 5 presents the results from the factor analysis. The first row shows the number of common factors found using a VARIMAX rotation. In the second row, the eigenvalues represent the proportion of total variance in all the variables accounted for by that factor. To decide the number of factors to retain, we use the Kaiser criterion which involves dropping the eigenvalues less than one — i.e., unless a factor extracts at least as much as the equivalent of one original variable, we drop it. In the third row (% of variance), these values are expressed as a percentage of the total. As we can see, factor 1 accounts for 18.14 percent of the variance, factor 2 comprises 16.84 percent, and so on. The fourth row (cumulated %) contains the cumulative variance extracted and shows that the six dominant factors whose eigenvalues are more than one, add up to 72.59 percent of the total variance. These factors can be considered as the 5 major country risk factors that characterize groups 1 and 2 and Turkey.

The following rows show the loading of each risk score variable within each factor. The construction of the factors is not straightforward as it depends on the particular combination of observed variables that correlate highly with each factor. In order to minimize the subjective nature of the principal component analysis, we only consider individual risk score loadings with "good" correlation. Comrey and Lee (1992)

define a "good" condition for a loading greater than 0.5 (or smaller than -0.5) — i.e., 50 percent overlapping variance. Each factor's composite score is determined by taking into account the risk scores that load highly in it. Accordingly, following Seiler (2004), each factor's score is computed using a summated scale methodology where selected loadings within each factor are added to determine a factor score. Since risk scores are not on a standardized scale, we have to ensure that each risk score selected for the composition of a risk factor is standardized so that equal importance is given to all risk scores in the summation process. Finally, the factor is computed using the logarithm of the sum. Our factors form coherent groups of selected associated variables. Also, each factor has positive loadings and follows the ICRG scale — i.e., a high value indicates a low risk and a low value indicates a high risk. Each of the six constructs is briefly reviewed below.

Table 4: Relationship between Excess Volatility and Fundamental and Country Risk Differentials
December 1999 - June 2004

	Coefficient	**Std. Error**	**t-stat**	**Prob.**
a(0)	0.02818	0.097434	0.29	0.7737
a(1)	-0.09001	0.000196	-0.48	0.6327
a(2)	-0.92828	0.876114	-1.06	0.2947
a(3)	0.02150	0.013528	1.59	0.1185
a(4)	-0.04038	0.019841	-2.04**	0.0474
a(5)	-0.09044	0.021688	-4.17***	0.0001
a(6)	-0.06276	0.039260	-1.60	0.1165
Observations	55 months			
Adjusted R^2	0.33			
Durbin-Watson Stat.	1.99			

*where $R_{Turkey,deflated}$ and $R_{Group2,deflated}$ are each month's median deflated stock returns (64 stocks for Turkey and 159 stocks for group 2); β_{Turkey} and β_{Group2} are each month's median betas; $PTBV_{Turkey}$ and $PTBV_{Group\ 2}$ are each month's median price-to-book value; $size_{Turkey}$ and $size_{Group2}$ are each month's median market capitalization; $SEconR_{Turkey}$ and $SEconR_{Group2}$ are each month's median standardized economic risk ratings; $SFinR_{Turkey}$ and $SFinR_{Group2}$ are each month's median standardized financial risk ratings; and $SPolR_{Turkey}$ $SPolR_{Group2}$ are each month's median standardized political risk ratings. To correct for the presence of autocorrelation and heteroskedasticity, standard errors and t-statistics are calculated using the Newey-West heteroskedasticity and autocorrelation consistent (HAC) covariance matrix. Variance inflation factors are less than 2 suggesting the absence of multicolinearity. ***, **, and * indicate significance at the 1, 5 and 10 percent level.*

$$
\begin{aligned}
(R_{Turkey,deflated} - R_{Group\,2,deflated})^2 = {} & a_0 \\
& + a_1(\beta_{Turkey} - \beta_{Group\,2}) \\
& + a_2[\log(PTBV_{Turkey}) - \log(PTBV_{Group\,2})] \\
& + a_3[\log(size_{Turkey}) - \log(size_{Group\,2})] \\
& + a_4(SEconR_{Turkey} - SEconR_{Group\,2}) \\
& + a_5(SFinR_{Turkey} - SFinR_{Group\,2}) \\
& + a_6(SPolR_{Turkey} - SPolR_{Group\,2}) + \varepsilon_i
\end{aligned}
$$

The first factor's contributing variables are corruption, democratic accountability and religious and ethnic tensions. We name the first factor *social tension rating* because the contributing variables emphasize issues associated with corruption, democratic accountability, and religious and ethnic tensions. This factor accounts for 18.14 percent of the variance. The second factor consists of five significant variables: current accounts as a percentage of exchange of goods and services, current accounts as a percentage of GDP, GDP per inhabitant, GDP growth, and socio-economic conditions. Ultimately, this risk factor is named *economic condition rating*. This factor accounts for 16.8 percent of the variance. We name the third factor *conflict rating* because of its loading with internal and external conflicts. This factor accounts for 14.68 percent of the variance. The fourth factor relates to exchange rate stability and inflation and is summed up as an *investment profile rating.* It accounts for 12.59 percent of the variance. The fifth factor is an

international openness rating as it addresses the stability of the current regime and the longevity of the laws passed or initiated as well as international liquidity and foreign investments. This factor accounts for 10.35 percent of the variance.

Table 5: Factor Analysis on Europe's 22 Country Risk Ratings (1999:12 to 2004:06) — Group1, Group 2, and Turkey

Name	Factor 1 Social Tensions	Factor 2 Economic Conditions	Factor 3 Conflicts	Factor 4 Investment Profile	Factor 5 International Openness
Corruption	0.757	0.381	0.038	-0.087	0.053
Democratic Accountability	0.701	-0.147	0.144	0.352	-0.158
Religious Tensions	0.668	0.190	0.058	0.200	0.053
Ethnic Tensions	0.653	0.039	0.258	0.143	-0.145
Risk Points for Budget Balance	0.495	0.095	0.202	0.292	0.443
Bureaucracy Quality	0.467	0.441	0.238	0.231	0.148
Risk Points for Current Account as % of XGS	0.118	0.850	0.15	-0.081	0.125
Risk Points for Current Account as % of GDP	0.184	0.765	0.136	-0.074	0.206
Risk Points for GDP per Head of Population	0.398	0.676	0.06	0.344	0.236
Risk Points for GDP Growth	0.168	0.667	0.134	-0.194	0.224
Socioeconomic Conditions	0.448	0.661	0.207	0.427	0.249
Law & Order	0.407	0.636	0.442	-0.007	0.287
Internal Conflict	0.265	0.096	0.795	0.100	0.038
Risk Points for Debt Service	-0.171	0.001	0.710	0.220	0.143
External Conflict	0.279	0.179	0.675	0.025	-0.167
Military in Politics	0.428	0.134	0.660	0.498	0.015
Risk Points for Exchange Rate Stability	0.112	-0.171	0.263	0.706	0.107
Investment Profile	0.133	0.311	-0.016	0.670	-0.230
Risk Points for Inflation	0.397	0.102	0.229	0.655	0.269
Risk Points for Foreign Debt	-0.107	0.123	-0.004	0.306	0.813
Risk Points for International Liquidity	0.077	-0.42	-0.143	0.213	0.798
Government Stability	0.461	-0.002	-0.177	-0.219	0.622
Eigenvalue	3.99	3.704	2.569	2.55	2.056
% of Variance	18.138	16.838	14.677	12.593	10.346
Cumulative	18.138	34.976	49.652	62.245	72.591

This table provides the statistics related to factor analysis. The top portion of the table provides the details with respect to eigenvalues, and the proportion of the total variation that these factors explain. "Cumulative" is the cumulative variation explained by these factors. The bottom portion of the table provides information about the rotated factor pattern. We use a VARIMAX rotation which minimizes the number of factors on which a single variable has a high loading. Kaiser's Measure of Sampling Adequacy is 0.8545 and the Barlett test of sphericity is significant at the 1 percent level. Highlighted figures indicate the factors selected (the cut-off is 0.5).

The next step is to identify which combination of these factors and firms' fundamentals can explain monthly stock risk premiums in Turkey and in a portfolio of stocks traded in 8 countries (group 2) which were recently accepted into the EU. We investigate equation 2 and its nested model, equation 3, to identify the significant factors that explain Turkish and group 2 stock returns from December 1999 to June 2004. The regression findings are shown in Table 6. We report all coefficients, standard errors, and standardized coefficients. At the bottom of the table, the sum of the absolute value of the standardized coefficients is reported; the significance of the sum is determined by a Wald test.

independent variable is not shared by other independent variables) indicating that our regressions are not likely affected by multi-collinearity. Equation 2 always provides a better fit than equation 3 — i.e., equation 2 has R^2 ranging from 0.11 to 0.18 and equation 3 has R^2 ranging from 9% to 12%. In addition, all residual tests unambiguously demonstrate that equation 2 is the best model. For instance, alphas in Davidson and MacKinnon (DM) tests are close to unity (equation 2 is 100 percent more effective than equation 3) and are significant at the 1% level. Posterior odd ratios are highly in favor of equation 2. The residual tests indicate that, while equation 2's factors provide significant additional information to supplement that found in equation 3, the reverse is not true. As Girard and Omran (2006) point out, political, economic and financial risk ratings assume a fixed weighting scheme among their respective constituents and there is no obvious empirical rationale for this. Furthermore, several risk scores

constituting each composite rating are negatively correlated; indicating that, at the composite level, the effect of some risk scores will offset other risk scores.

Table 6: Determinant of Returns in Turkey and Group 2

	(Equation 3) $R_{i,deflated} = b_0 + b_1\beta_i + b_2 \ln(PB) + b_3 \ln(size) + \lambda_1 Ln(PR) + \lambda_2 Ln(ER) + \lambda_3 Ln(FR) + \varepsilon_i$		(Equation 2) $R_{i,deflated} = b_0 + b_1\beta_i + b_2 \ln(PB) + b_3 \ln(size) + \lambda_1 factor_1 + \lambda_2 factor_2 + \lambda_3 factor_3 + \lambda_4 factor_4 + \lambda_5 factor_5 + \varepsilon_i$	
	Group 2	***Turkey***	***Group 2***	***Turkey***
(Constant)	0.511	0.920***	1.040**	3.921***
Std. Error	0.430	0.328	0.500	0.607
Beta	0.006*	-0.002	0.018***	-0.011
Std. Error	0.004	0.013	0.006	0.016
SCoef	0.024	-0.002	0.046	-0.014
Ln(PB)	0.009***	0.012*	0.008***	0.014*
Std. Error	0.002	0.007	0.003	0.007
SCoef	0.074	0.036	0.068	0.044
Ln(size)	0.003**	0.011***	0.003*	0.013***
Std. Error	0.001	0.004	0.001	0.004
SCoef	0.050	0.055	0.047	0.053
Ln(economic risk)	0.013	-0.208***		
Std. Error	0.053	0.045		
SCoef	0.004	-0.096		
Ln(financial risk)	-0.107**	0.173***		
Std. Error	0.052	0.066		
SCoef	-0.029	0.055		
Ln(political risk)	-0.047	-0.250***		
Std. Error	0.066	0.076		
SCoef	-0.011	-0.060		
Factor1			-0.188***	0.078*
Std. Error			0.047	0.045
SCoef			-0.073	0.045
Factor2			-0.185***	-0.803***
Std. Error			0.066	0.130
SCoef			-0.065	-0.194
Factor3			0.063	-0.315**
Std. Error			0.073	0.128
SCoef			0.017	-0.073
Factor4			-0.010	0.197***
Std. Error			0.030	0.043
SCoef			-0.006	0.157
Factor5			-0.009	-0.331***
Std. Error			0.031	0.060
SCoef			-0.006	-0.166
R^2	0.088	0.118	0.111	0.180
N	4240	2808	4240	2808
# of stocks	176	78	176	78
F	6.099***	6.927***	7.854***	10.438***
Fundamentals premiums	0.148***	0.093***	0.161***	0.111***
Country premiums	0.044***	0.211***	0.167***	0.635***
Residuals Test 1	0.090	0.047	0.941***	0.978***
Residuals Test 2	>10^23	>10^25	0	0
Residuals Test 3	F1***,F2***,F3***,	F1***,F2***,F3***,	None	None

To correct for the presence of autocorrelation and heteroskedasticity, standard errors and t-statistics are calculated using the Newey-West heteroskedasticity and autocorrelation consistent (HAC) covariance matrix. Variance inflation factors are less than 2, suggesting the absence of multicolinearity. Standardized coefficients (SCOEF) are the coefficients obtained after standardizing the variables and they indicate that an increase in 1 standard deviation on one of the factors affects "beta" standard difference in Ri, holding constant the other predictors in the model. The sum of the absolute value of the standardized coefficients is also reported; the significance of the sum is determined by a Wald test. RT1 (Residual test 1) is the Davidson and MacKinnon (1981) equation which estimates the proportion of information (α , the effectiveness of a model as compared to a competing model) unexplained by eq. 2 which is explained by eq. 3 —.e., the test consists in measuring α in $Ri = \alpha R_{eq2} + (1-\alpha)R_{eq3} + \varepsilon_i$. RT2 (Residual test 2) is the ratio for posterior odds (POR) of eq. 2 over eq. 3 represented as $POR = \left[ESS_{eq2} / ESS_{eq3}\right]^{N/2} N^{(K_{eq2}-K_{eq3})/2}$, where ESS is the error sum of squares, N the number of observations, and K is the dimension of respective models. RT3 (Residual test 3) is the partitioned residual test and it consists of running a regression between $\varepsilon_{eq3,i}$ and the factor loadings of eq. 2; we also run a regression of the residuals of eq. 2 ($\varepsilon_{eq2,i}$) with the factor loadings of eq. 3 to check for information missed by eq. 2. ***,** and * indicate significance at the 1, 5 and 10 percent level.

The variance inflation factors (for the sake of brevity, unreported) for each independent variable are extremely low for each period (less than 1.5, that is, more than 67 percent of the variance of each

The first interesting finding is that firms' fundamentals are as important as country risk factors in explaining stock risk premiums for the group 2 portfolio — e.g., a one-standard deviation shock on fundamentals leads to a 0.15 to 0.16 standard deviation shock on R_i, and a one-standard deviation shock on country risk ratings leads to a 0.04 to 0.17 standard deviation shock on R_i. However, the combined effect of country risk scores has a greater impact on risk premiums than firms' fundamentals alone in Turkey — e.g., a one-standard deviation shock on fundamentals leads to a 0.09 to 0.11 standard deviation shock on R_i, and a one-standard deviation shock on country risk factors leads to a 0.21 to 0.64 standard deviation shock on R_i.

Fundamentals such as size and price-to-book affect returns of both Turkish stocks and those traded in the countries forming group 2. However, there is a significant difference between the impacts of country risk factors in Turkish and group 2 stocks. For instance, while Turkish stocks are sensitive to all country risk factors, group 2 is mostly affected by only two factors. More specifically, listed from most to least important based on the standardized coefficients, Turkish stocks are sensitive to factor 2 (economic conditions), factor 5 (international openness), factor 4 (investment profile), factor 3 (conflicts) and factor 1 (social tensions). Group two is mostly affected by factor 1 (social tensions) and factor 2 (economic conditions), in that order.

In sum, we have identified that size, price-to-book value, and mostly all country risk factors affect Turkish stocks. On the other hand, group 2 stocks are equally affected by fundamentals and country risk factors. These findings are in accordance with our earlier discussion in the introduction — i.e., EU concerns of Turkey being politically too unstable, and financially and economically too underdeveloped, may be warranted.

CONCLUSION

Turkey formally became a candidate for EU membership on December 10, 1999. The hope of joining the EU has driven major reforms in Turkey, including economic liberalization, human rights protection, independence of the judiciary system, as well as economic and financial reforms leading to reduced hyperinflation, a more fairly valued currency, and lower interest rates. Nevertheless, the EU still perceives Turkey as politically too unstable, and financially and economically too underdeveloped to become a member. Turkish general opinion widely believes that the underlying reason for rejection by the EU is cultural differences rather than economic, political and financial weaknesses.

This paper attempts to explore the issue by identifying the risks associated with investing in the Turkish stock market. We first compare the source of excess volatility found in a portfolio of Turkish firms with those of new EU members which shared the same candidacy period as Turkey. We find that Turkish firms are indeed much more volatile and that the excess volatility can be significantly associated with higher financial and economic risks rather than fundamentals. We further investigate whether the differences in fundamentals and composite ratings between Turkey and a comparison group explain the excess volatility observed in the Turkish market as compared to other markets. The findings confirm that excess volatility is indeed driven by differences in relative financial and economic development rather than firms' fundamentals.

We further investigate the difference in sensitivity fundamentals and composite ratings between Turkey and a portfolio containing 176 stocks traded in the 8 other markets during their common candidacy period for EU membership. The first interesting finding is that firms' fundamentals are as important as country risk factors in explaining stock risk premiums for group 2, while the combined effect of country risk

scores has a greater impact on risk premiums than firms' fundamentals alone in Turkey. While Turkish stocks are sensitive to all country risk factors — economic conditions, international openness, investment profile, conflicts, and social tensions — group 2 is mostly affected by only two factors, namely social tensions and economic conditions.

In sum, we have identified that size, price-to-book value, and mostly all country risk factors affect Turkish stocks. On the other hand, group 2 stocks are equally affected by fundamentals and country risk factors. These findings are in accordance with our earlier discussion in that the EU concerns of Turkey being politically unstable, and financially and economically less developed may be warranted. Overall, Turkey has been quite successful at pursuing reforms since commencing its candidacy for EU membership. It has liberalized its political system and relaxed restrictions on freedom, reduced hyperinflation, strengthened its currency, lowered interest rates, and provided a more stable growth in GDP. However, political, financial, and economic instabilities appear to be dominant issues throughout the study period.

ENDNOTES

1. Because the profit motive induces participants in financial markets to use every piece of readily available data to infer the current state of the economy, a capital market reflects investors' best collective forecast of future profits and is forward-looking on the economy. In fact, Fama (1990), Fama and French (1989), Hamilton and Lin (1996), Schwert (1990), Steven and Robert (1998), and Whitelaw (1994), among many others, find evidence of systematic movements in excess stock returns that are related to estimates of the underlying state of the business cycle — i.e., contractions in the stock market usually begin months before an economic recession and end before the trough and, therefore, anticipate the economic recovery. That is, stock market fluctuations lead the business cycle and are driven by expectations about changes in future economic activity.

2. EMDB does not represent a random sample of firms; thus, a selection bias can be seen in favor of larger and more actively traded firms (Rouwenhorst, 1999).

3. This is the same risk provider used and recommended in Erb, Harvey and Viskanta (1995, 1996a, 1996b and 1998) and Girard and Omran (2006). Indeed the authors examine many providers of country risk data (Bank of America World Information Services, Business Environment Risk Intelligence, Control Risks Information Services, the Economist Intelligence Unit, Euromoney, Institutional Investor, S&P Rating Group, the ICRG, Coplin-O'Leary Rating System, and Moody's Investors Services) and conclude that only the ICRG composite, political, financial and economic risk scores contain information that explains index returns.

4. The Turkish IFCG index is value-weighted and intended to represent a target of 60 to 75 percent of a country's total market capitalization and an industrial composition similar to that of the overall market.

5. This is the standard procedure used to estimate deflated excess return and has been used by a number of researchers including Kraus and Litzenberger (1976) and Fang and Lai (1997).

6. The monthly returns are estimated by dividing the difference in the price (or index values) between two consecutive months by the first month i.e., $R_{i(or\ m).t} = \left(P_{i(or\ m).t} - P_{i(or\ m).t-1}\right) \Big/ \left(P_{i(or\ m).t-1}\right)$

7. Rather than using the value weighted indices (IFCG indices) provided by EMDB, we build an equally weighted index for each country by averaging, each month, the returns for the stocks available. Indeed, the database is already biased towards large and liquid firms and, more generally, value weighted indices of emerging markets are more likely dominated by a few very large stocks. Thus, the use of an equally weighted index can minimize this size bias.

8. Girard and Omran (2006) show that (i) risk scores include information that cannot be aggregated in a composite measure and (ii) some risk measures have a greater bearing on business or investments, and a composite risk rating should place greater weight on those factors.

9. These have been suggested by Chen (1983) and used by Girard and Omran (2006) among others.

10. ICRG risk ratings consist of 12 political risk ratings, 5 financial risk ratings, 5 economic risk ratings, and 4 composite risk ratings. The second column of the table indicates the scale of each measure — i.e., 'bureaucracy quality' rating is out of 4, 'government stability' is out of 12, and so on. All political risk ratings scales add up to 100 possible points. The 'composite political risk' rating is then computed by summing all 12 individual political risk ratings. It has a maximum of 100 points. In the same vein, financial and economic risk ratings add up to 50 possible points, and their sum constitutes the composite financial and economic risk ratings. The composite rating (out of 100 points) is half of the sum of the composite political (100 possible points), financial (50 possible points) and economic risk ratings (50 possible points).

11. These are all stocks available in EMDB in each of the markets mentioned above from 1999:12 to 2004:06. There are no data available for the Greek part of Cyprus and for Malta, so they have been excluded from the analysis.

12. The Kaiser-Meyer-Olkin test (KMO) value for the sample is high (0.8545) and the Barlett test of sphericity is significant at the 1% level, indicating that the factor analysis is an appropriate technique for our data.

REFERENCES

Aggarwal, R., Rao, R. P., and Hiraki, T. (1992), Price/book value ratios and equity returns on the Tokyo Stock Exchange: empirical evidence of regularities. *Financial Review*, 27, 589-605.

Bolbol, A., and Omran, M. (2005), Investment and the stock market: evidence from Arab firm-level panel data. *Emerging Market Review*, 6, 85-106.

Bolten, S. and Weigand, R. (1998), The generation of stock market cycle. *Financial Review*, 33, 77-84.

Chan, L. K. C., Hamao, Y., Lakonishok, J. (1991), Fundamentals and stock returns in Japan. *Journal of Finance*, 46, 1739-1764.

Chen, N. F. (1983), Some empirical tests of arbitrage pricing. *Journal of Finance*, 38, 1393-1414.

Claessens, S., Dasgupta, S., and Glen, J. (1998), The cross section of stock returns: evidence from emerging markets. *Emerging Markets Quarterly*, 2, 4–13.

Comrey A.L., and Lee, H.B. (1992), A first course in factor analysis, 2nd Ed (Hillsdale, NJ: Erlbaum).

Daniel, K., and Titman, S. (1997), Evidence on the characteristics of cross-sectional variation in stock returns. *Journal of Finance*, 52, 427-65.

Davidson, R., and MacKinnon, J. (1981), Several tests for model specification in the presence of alternative hypotheses. *Econometrica*, 49, 781-793.

Demirgüç-Kunt, A., and Maksimovic, V. (1998), Law, finance, and firm growth. *Journal of Finance*, 53, 2107-2137.

Erb, C., Harvey, C., and Viskanta, T. (1995), Country credit risk and global portfolio selection. *Journal of Portfolio Management*, Winter, 74-83.

_____(1996a), Expected returns and volatility in 135 countries. *Journal of Portfolio Management*, Spring, 46-58.

_____(1996b), Political risk, financial risk and economic risk. *Financial Analysts Journal*, 52, 28-46.

_____(1998), Risk in emerging markets. *The Financial Survey*, July/August, 42-46.

Fama, E.F. (1990). Stock returns, expected returns, and real activity. *Journal of Finance*, 45, 1089-1108.

Fama, E. and French, K. R. (1989), Business conditions and expected returns on stock and bonds. *Journal of Financial Economics*, 25, pp. 23-49.

Fama, E.F., and K.R. French (1992), The cross-section of expected stock returns. *Journal of Finance*, 47, 1992.
_____(1996), Multifactor explanations of asset pricing anomalies. *Journal of Finance*, 51, 55–84.

_____(1998), Value versus growth: the international evidence. *Journal of Finance*, 53, 1975–1999.
Fang, H., and Lai, T.Y. (1997), Co-kurtosis and capital asset-pricing. *Financial Review*, 32, 293-307.

Girard E., and Omran, M. (2006), What risks are systematic in thinly traded capital markets: the case of Arab countries. *Journal of International Financial Markets, Institutions & Money* (Forthcoming).

Hamilton, J. and Lin, G. (1996), Stock market volatility and the business cycle. *Journal of Applied Econometrics,* 11, 574-593.

Harvey, C., and Roper, A. (1999), "The Asian bet" in Alison Harwood, Robert E. Litan and Michael Pomerleano, eds., *The Crisis in Emerging Financial Markets*, Brookings Institution Press, 29-115.

Kraus, A., and Litzenberger, R.H. (1983), On the distributional conditions for a consumption-oriented three moment CAPM. *Journal of Finance*, 38, 1381-1391.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (1997), Legal determinants of external finance. *Journal of Finance*, 52, 1131-1150.

Lyn, E., and Zychowicz, E., (2004), Predicting stock returns in the developing markets of Eastern Europe. *Journal of Investing*, Summer, 2004.

Oijen, P., and Perotti, E. (2001), Privatization, market development and political risk in emerging economies. *Journal of International Money and Finance*, 2, 43-69.

Patel, S. (1998), Cross-sectional variation in emerging markets equity returns. *Emerging Markets Quarterly*, 2, 57–70.

Ramcharran, H. (2004), Returns and pricing in emerging markets. *Journal of Investing*, Spring, 2004.

Rouwenhorst, K. G. (1999), Local return factors and turnover in emerging stock markets. *Journal of Finance*, 54, 1439–1464.

Seiler, M.J. (2004), Performing financial studies, a methodological cookbook (Upper Saddle River, NJ: Pearson Prentice Hall).

Schwert, G.W. (1990), Stock volatility and the crash of ’87. *Review of Financial Studies*, 3, 77-102.

Whitelaw, R. (1994), Time variations and covariations in the expectation and volatility of stock market return. *Journal of Finance*, 2, 515-541.