Do International Banks' Assessments of Country Risk Follow a Random Walk? An Empirical Examination of the Middle East

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Abstract

The intent of this article is to ascertain the stability of country risk ratings of countries in the Middle East. We checked for unit root in the country risk ratings in order to examine the potential for spurious regression in the country risk literature. Indeed, the potential exists because the country risk ratings of some developing countries follow a random walk, even after adjusting for structural changes. Our analysis of the country risk behavior in the Middle East revealed surprising results. Middle Eastern countries that depend on oil for revenues experience greater country risk stability, in addition to more favorable country risk ratings, compared to those in the region that that do not have oil. Compared with East Asian countries, the Middle Eastern countries have a more stable country risk environment, despite the many inter and intra socio-political conflicts in the region.

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Introduction

By the end of 1999, the position of U.S. foreign direct investment abroad, valued at historical cost, reached $1.13 trillion, a 12% increase from its level in 1998. This increase has been a result of the acceleration in cross-border mergers and acquisitions, reinvested earnings, and opportunities in emerging markets (Bargas, 2000). While net long-term capital flows to emerging markets increased from $42 billion in 1990 to $256 billion in 1997, gross (both outflow and inflow) international capital flows increased even faster. "The phenomenal growth of international capital flows is one of the most important developments in the world economy since the breakdown of the Bretton Woods system of fixed exchange rates in the early 1970s" (Council of Economic Advisers 1999, p. 221).

The increase in cross-border capital flows to developing countries raised the need to understand the risks associated with these monies. In response to this growing need, which began to develop rapidly in the 1970's, a number of institutions have constructed

methods to measure the country's credit worthiness (also referred to as country risk) to help investors and lenders evaluate their exposure. Recent crises in the global economy show that the importance of country risk analysis has not waned.

While country risk refers to the ability and willingness of a country to service its foreign debt, private firms are also influenced by country risk because their ability to pay their foreign obligations can be seriously impaired by a sudden depreciation of their currencies, exchange controls, or insufficient foreign currency in the central banks (Wells 1997). Therefore, foreign companies have adjusted the level and type of investment, and the organizational form of entry into emerging countries, which embody high level of country risk.

Because country risk ratings are supposed to reflect the probability of default on foreign financial obligations, the extant literature on the topic shows that country risk impacts a variety of economic factors such as foreign direct investment (e.g., Gross and Trevino 1996), equity ownership (e.g., Pan 1996), stock market returns (e.g., Erb, Harvey and Viskanta 1996), bank loans, bond prices and bond yields (e.g., Scholtens 1999).

Banks loan practices in developed economies have been called into question when economic crises precipitated in emerging markets. In response to changes in a country's credit ratings, banking institutions have adjusted the volume and interest-rate spread for syndicated commercial loans to developing countries. Feder and Ross (1982) ascertained a systematic relationship between bankers' assessment of country risk and interest rate differential in the Euromarket.

This paper is concerned with examining the stability of Institutional Investor's country risk ratings over time for selected Middle Eastern countries using unit root

analysis. Despite the widespread use of Institutional Investor's country risk ratings in academic research, no known studies examined the persistence of these measures over time. The focus of this article is to find whether international banks' assessment of country risk follows a stationary path or a random walk. While several measures of country risk exist, we chose Institutional Investor's ratings because (1) it is the only measure that is based solely on the ratings of leading international bankers, (2) it is offered free to Institutional Investor's readers ensuring widespread dissemination, (3) it is a widely accepted measure by both industry and academia, and (4) it correlates closely with other leading measures of country risk. Cosset and Roy (1991) found a high correlation ($r = 0.96$) between the ratings of *Euromoney* and Institutional Investor. Both Cosset and Roy and Brewer and Rivoli (1990) found that Institutional Investor and Euromoney ratings display a similar deterministic structure (i.e., they react similarly to changes in the independent variables). To test for convergent validity, Dichtl and Koglmayr (1986) compared the German country risk ratings of *Manager Magazin*, which is based on 225 experts from business, banks, Chambers of Commerce and other institutions, to Institutional Investor, finding a correlation coefficient of 83%.

Since the mid-1980's, numerous researchers have offered a variety of economic and political explanations to the behavior of country risk ratings (Feder and Uy 1985; Dichtl and Koglmayr 1986; Citron and Nickelsburg 1987; Brewer and Rivoli 1990; Cosset and Roy 1991; Balkan 1992; Haque et al. 1997). Their explanations of country risk were grounded in the literature of debt service, international borrowing, and credit risk and are generally well-known. Table 1 shows a list of the explanatory variables used in the various studies along with their corresponding rational and expected influence on

Table1: Factors of Country Risk

Factor	Variables	Rational	Expected Sign
Wealth	GNP per Capita*	Wealthier countries can lower consumption to implement an austerity program.	+
Growth	Propensity to Invest Change in GDP	Countries with higher growth have a high opportunity cost of defaulting and are more likely to finance their debt.	+
Financial Ability to Generate Hard Currency	Current Account/GNP Export Growth Rate Export Volume BOP Surplus Capital Inflow/Debt	These variables are sources of hard currency needed to maintain debt service. It should be noted that some of the variables are expressed as stocks and some as flows.	+
Domestic Economic Structure	Increase Money Supply Rise in Prices Consumption/GDP	High domestic prices will lead to capital flight. Strong domestic economy can deal better with financial shocks.	–
Sensitivity	Export Variability Import Volumes Export Structure	High export variability can sensitize the country to currency crisis. However, the default risk can be smaller because they depend on frequent borrowing to smooth out consumption (Cosset and Roy 1991).	+ /–
Political Instability	Changes in Gov't Changes in Leadership Political Legitimacy Armed Conflict	Political instability reduces the country's willingness to pay because the costs of obtaining a larger share of GNP through taxation increases the possibility of governmental collapse (Citron and Nickelsburg 1987). Assumes new government is weaker.	–
International Institutional Affiliation	Credits from IMF Debt Rescheduling or Service Difficulties Claims to IMF Credits from BIS	While no explanation was offered, Ditchtl and Koglmayr (1986) found that credits from the IMF worsen country risk, while credits from BIS improves it.	– +
Leverage	Net Debt/Exports Debt Payment/Export Total Int. Debt/GNP	Highly leveraged countries are more likely to experience disturbances in debt payments during hard times.	–
Liquidity	Gold Stocks Int. Reserves/Imports Int. Reserves Currency Reserves	While liquidity cannot solve persistent BOP problems, they can help a country deal with short term fluctuations.	+

the perceived level of country risk. Although some dimensions of country risk have been established, there is no agreement in the literature with respect to the exact deterministic structure of country risk. Because of this disagreement, a number of researchers have focused on prediction instead of explanation to form a "best-fit" and a practical model. Balkan (1992, p. 999), for example, wrote:

> The empirical specification in the context of country risk analysis is not amenable to devising a robust structural model. Hence, a main argument in the paper is that the sign and the value of the coefficients, estimated from a structural model are not very meaningful and usually not robust with respect to alternative model specifications. Consequently, the main argument here is to replace the model approach by a forecasting-based approach, give this limitation.

Others have criticized the empirical approach to measuring default risk, claiming that the predictive capabilities of the models are not high. The empirical literature on default risk suggests that either country risk follows a random walk or the market of international lending does not fully account for it (Citron and Nickelsburg 1987). Our paper tests the first argument for the Middle East region.

Understanding whether country risk measures follow a stationary process has profound implications to international business theory and practice. If the unit root null hypothesis is rejected, the measures of country risk are stationary over time, and the countries' risk measures will revert to their long-run mean. If the unit root hypothesis is not rejected then one can say that the data follow a random walk (i.e., past observations do not provide information on the future). More importantly, the impact of a shock, whether positive or negative, on a random walk will last forever. Several important implications follow from this type of analysis:

(1) Previous established relationships between selected environmental variables and country risk ratings may exhibit spurious relationships (for problems of spurious relationships see Granger and Newbold, 1974).

(2) Univariate forecasts of non-stationary country-risk data are not reliable because shocks are permanent and the mean does not revert to its long-run level.

Since Institutional Investor's country risk ratings have been rigorously used as proxies for country risk and/or bankers' perceptions of credit worthiness in developing and testing

country risk models, construction and interpretation, prediction and structural analysis can all be potentially improved from knowledge on the stationarity of the data.

We focused on the Middle East because it is an area of the world that is of strategic importance to many of the developed countries in the world. The region has a population of about 390 million people, and is home to most of the world's oil reserves. Recognizing the strategic importance of the region, the U.S. spends as much as $60 billion a year to preserve its interests there (Abbas, 1999). Risk is eminent in the Middle East and the only certainty is uncertainty. The Iranian revolution, the Iran-Iraq war, the Gulf war, and the Arab-Israeli conflict are just a few examples of the types of political instabilities that plague the region. Country risk ratings of one country in the Middle East may spillover to another because countries share external borders, which can lead to territory disputes, resources, such as water, and economic space, as in the case of OPEC (Alon et al., 1998).

The next section (Section 2) reviews the methodology, including information about the data and the analytical technique used to test for unit root. The third section explains the empirical results. Section 4 discusses the implications of our analysis. Finally, Section 5 provides conclusions and suggests directions for future research.

II. Methodology

2.1 *Data*

Institutional Investor provides a composite rating system that consists of a weighted average of leading international bankers' evaluations of countries' creditworthiness. Perceptions of leading international banks regarding the risk

environment impact the relative score give to each country. The ratings range from 0 (maximum risk of default) to 100 (minimum risk, most creditworthy). The ratings of international banks with the largest worldwide exposure receive more weight than those from smaller international banks.

Our analysis divides OPEC and NON-OPEC countries. OPEC countries produce about 40 percent of the world's oil and have more than 77 percent of proven oil reserves. Seven of the 11 OPEC countries in the world reside in the Middle East. Figure 1 plots the ratings from 1979 to 1999 for all the 14 Middle East countries considered in the present study. Table 2 provides several descriptive statistics.

Table 2. Descriptive Statistics

Country	Mean	Std	Min	Max	Skewness	Kurtosis	Correlation (1)
OPEC Countries							
Iran	23.09	6.53	12.8	36.2	0.22	-0.78	0.67
Iraq	19.87	16.29	7.1	60.4	1.61	1.69	0.98
Saudi Arabia	63.41	8.91	53.7	85.4	0.91	-0.02	0.96
Qatar	54.82	3.31	49.7	65.8	1.84	5.51	0.71
United Arab Emirates	59.77	2.52	54.2	66.2	0.03	1.79	0.50
Kuwait	59.43	8.99	41.8	79.3	0.23	0.08	0.84
NON-OPEC Countries							
Israel	39.99	8.64	28.3	54.3	0.52	-1.23	0.90
Syria	22.77	5.76	16.8	39.3	1.73	3.04	0.90
Jordan	32.87	7.29	20.7	44.7	-0.52	-0.81	0.93
Egypt	31.59	6.29	22.4	44.4	0.13	-0.69	0.89
Lebanon	17.43	8.71	7.3	32.5	0.55	-1.15	0.92
Oman	50.73	2.45	45.4	53.5	-0.84	-0.56	0.62
Cyprus	44.73	8.18	33.1	57.3	0.23	-1.28	0.97
Bahrain	54.11	3.80	48.1	62.9	0.41	-0.24	0.82

Most countries except Jordan and Oman have positive skewness, indicating a distribution with an asymmetric tail extending toward more positive values. Nine of these 14 countries have negative kurtosis, which indicates relatively flat distribution compared

to normal. The first order autocorrelation of the countries are fairly high, ranging between 0.50 (United Arab Emirates) and 0.98 (Iraq).

2.2 *Unit Root Test*

Testing for unit roots is the single topic that attracted the most attention in the 1980s and 1990s among econometricians. The number of papers on this topic quickly grew into hundreds since the 1980s. If a series contains a unit root, the effect of any shock is permanent whereas for a stationary series, the effect of a shock fades away over time. Therefore, whether an economic variable contains a unit root or not, is very important for macroeconomists in studying the impact of a policy change or an economic event on its long run behavior.

Dickey-Fuller (1979, 1981) test is among the most widely used unit root tests. The test considers three model specifications: a pure random walk, a random walk with a drift (or intercept), and a random walk with both a drift and linear time trend. The methodology is precisely the same, regardless of which of the three forms of the equations is estimated. However, the critical values of the *t*-statistics do depend on whether an intercept and/or time trend is included in the regression equation. The augmented Dickey-Fuller test is similar to the Dickey-Fuller test except that some lagged changes in the series are included in the regression. Dickey-Fuller tests require that the errors are statistically independent and have a constant variance. Problems may arise if the error terms are correlated and have changing variance.

Phillips and Perron (1988) developed a generalization of the Dickey-Fuller procedure that allows the disturbances to be weakly dependent and heterogeneously

distributed. We thus adopt the Phillips-Perron test in the present study. Our test proceeds as follows.

$$y_t = \alpha + \beta t + \rho y_{t-1} + e_t \quad (1)$$

$$y_t = \alpha + \rho y_{t-1} + e_t \quad (2)$$

$$y_t = \rho y_{t-1} + e_t \quad (3)$$

For each country, Model (1) is estimated first. The null hypotheses $\alpha = 0$, $\beta = 0$, and $\rho = 1$ are tested by the Phillips-Perron (1988) test as follows. First, the significance of α and β are tested by their corresponding Phillips-Perron statistics. If both are significant, the parameter estimates and their Phillips-Perron test statistics are reported. If any of the two coefficients is not significant, then Model (2) is estimated, and the significance of α is tested. If significant, results from Model (2) are reported, otherwise, report the results of Model (3). Critical values are from Dickey and Fuller (1981), and Fuller (1976), and we use *, **, and *** to indicate significant at 10%, 5%, and 1% significance level, respectively.

It should be noted that in performing unit root tests, special care must be taken if it is suspected that structural change has occurred. When structural breaks are present, the various Dickey-Fuller and Phillips-Perron test statistics are biased toward the non-rejection of a unit root (Perron, 1989). Perron (1997) proposes a test for unit roots that does not require an *a priori* fixed date of possible structural change, but treats it as unknown. Various methods are used to select the break points and the asymptotic and finite sample distributions of the corresponding statistics are studied in Perron (1997). As discussed in the introduction, the Middle East region has been plagued by instabilities including Iranian revolution, the Iran-Iraq war, the Gulf war, and the Arab-Israeli

conflict. To avoid the possible bias of the Phillips-Perron (1988) test due to the ignorance of the potential structural change, we also conduct the Perron (1997) test. The model we considered is

$$y_t = \alpha + \theta DU_t + \beta t + \delta D(T_b)_t + \rho y_{t-1} + e_t, \qquad (4)$$

where T_b denotes the time at which the change in the intercept occurs, $DU_t = 1(t > T_b)$ and $D(T_b)_t = 1(t = T_b + 1)$ where $1(\cdot)$ is the indicator function. The null hypothesis $\rho = 1$ is tested and the critical values are from Perron (1997). Again, we use *, **, and *** to indicate significant at 10%, 5%, and 1% significance level, respectively.

III. Empirical Results

The results for Phillips-Perron (1988) test are reported in Table 3. The null of unit roots is strongly rejected (1% significance level) for seven countries: Iran, Iraq, Saudi Arabia, Qatar, Israel, Syria, and Cyprus. The null of unit roots is rejected at 5% significance level for United Arab Emirates, and at 10% significance level for Oman. The null of unit root is not rejected for five countries: Kuwait, Jordan, Egypt, Lebanon, and Bahrain. One interesting observation is that while the ratings for most of the OPEC countries are stationary, the case for unit root is stronger for NON-OPEC countries.

While most (11 out of 14) of the Middle East countries have a significant drift term, few (5 out of 14) present a significant time trend. The five countries that show a positive significant trend in the ratings are Iran, Israel, Syria, Oman, and Cyprus, largely agreeing with the plots in Figure 1 (on p. 22).

Table 3. Phillips-Perron (1988) Test for Unit Root in Country Credit Ratings

Country	α	$Z(t_\alpha)$	β	$Z(t_\beta)$	ρ	$Z(t_\rho)$
OPEC Countries						
Iran	15.72	4.81 ***	0.68	4.05 ***	0.29	-5.07 ***
Iraq					0.85	-6.05 ***
Saudi Arabia	10.57	3.25 **			0.81	-3.80 ***
Qatar	28.48	5.38 ***			0.47	-5.54 ***
United Arab Emirates	34.58	3.41 **			0.42	-3.43 **
Kuwait	15.24	2.34 *			0.73	-2.57
NON-OPEC Countries						
Israel	11.07	6.40 ***	0.61	10.25 ***	0.72	-6.49 ***
Syria	5.43	3.99 **	0.19	3.74 ***	0.73	-4.79 ***
Jordan	3.83	2.69 **			0.87	-1.81
Egypt					1.02	0.40
Lebanon					1.00	-0.34
Oman	33.09	3.38 **	0.21	2.57 *	0.35	-3.38 *
Cyprus	21.33	4.71 ***	0.69	5.18 ***	0.54	-4.49 ***
Bahrain	15.21	2.45 *			0.71	-2.58

Note:

1. For each country, Model (1): $y_t = \alpha + \beta t + \rho y_{t-1} + e_t$ is estimated first. The significance of α and β are tested by their corresponding Phillips-Perron statistics. If both are significant, the parameter estimates and their Phillips-Perron test statistics are reported in Table 2. If any of the two coefficients is not significant, then Model (2): $y_t = \alpha + \rho y_{t-1} + e_t$ is estimated, and the significance of α is tested. If significant, results from Model (2) are reported, otherwise, report the results of Model (3): $y_t = \rho y_{t-1} + e_t$.
2. The null hypotheses $\alpha = 0, \beta = 0, \text{and } \rho = 1$ are tested by the Phillips-Perron (1988) test. *, **, and *** indicate significant at 10%, 5%, and 1% significance level, respectively. Critical values are from Dickey and Fuller (1981), and Fuller (1976).

The results from Perron (1997) test are reported in Table 4. The unit root test results from the Phillips-Perron (1988) test in Table 3 largely hold in Table 4 despite that the Perron (1997) test does detect structural breaks for all countries but Syria. For only two countries, Oman and Cyprus, when the structural change is considered, the null of unit root can no longer be rejected. With the Perron (1997) test, it reinforces our observation that the country risk ratings for most of the OPEC countries are stationary, the case for random walk is much stronger for most of the NON-OPEC countries.

Table 4. Perron (1997) Test for Unit Root with Endogenous Time Break

Country	T_b	α	θ	δ	β	ρ	$t_{\hat{\rho}}$	
OPEC Countries								
Iran	1993	4.41	-8.63	3.51	1.20	0.29	-9.89	***
		(2.80)	(-5.87)	(1.77)	(10.19)			
Iraq	1990	4.95	-2.83	-3.45	0.00	0.71	-6.48	***
		(1.74)	(-1.69)	(-2.01)	(0.02)			
Saudi Arabia	1985	65.55	-7.90	2.56	-0.51	0.13	-7.02	***
		(6.63)	(-5.04)	(1.53)	(-3.60)			
Qatar	1990	37.10	-0.66	-4.50	-0.07	0.34	-6.65	***
		(6.20)	(-0.66)	(-3.85)	(-0.75)			
United Arab Emirates	1985	53.78	-5.97	2.52	0.43	0.08	-5.37	**
		(5.19)	(-3.71)	(1.44)	(3.90)			
Kuwait	1990	19.60	-0.94	-17.79	-0.03	0.68	-4.77	
		(4.01)	(-0.65)	(-10.76)	(-0.26)			
NON-OPEC Countries								
Israel	1991	7.83	3.38	-4.91	-0.43	0.65	-8.80	***
		(4.61)	(2.85)	(-3.68)	(4.94)			
Syria	NA	5.85	0.00	6.97	0.25	0.57	-6.30	***
		(3.46)	(NA)	(3.70)	(4.44)			
Jordan	1987	7.13	-4.58	3.26	0.26	0.77	-2.78	
		(1.90)	(-2.10)	(1.65)	(1.24)			
Egypt	1984	5.97	-8.66	8.23	0.76	0.74	-2.26	
		(1.53)	(-3.52)	(3.10)	(4.62)			
Lebanon	1992	2.67	7.33	-4.90	0.05	0.68	-3.60	
		(1.17)	(2.74)	(-1.80)	(0.31)			
Oman	1990	36.37	-3.61	-2.06	0.52	0.20	-4.58	
		(4.48)	(-2.44)	(-1.30)	(3.65)			
Cyprus	1986	14.12	1.42	-0.95	0.61	0.52	-3.90	
		(3.74)	(1.10)	(-0.59)	(3.45)			
Bahrain	1990	39.80	-1.44	-4.97	-0.19	0.31	-4.66	
		(4.48)	(-1.29)	(-3.85)	(-1.72)			

Note:

1. For each country, Model: $y_t = \alpha + \theta DU_t + \beta t + \delta D(T_b)_t + \rho y_{t-1} + e_t$ is estimated. T_b denotes the time at which the change in the intercept occurs. $DU_t = 1(t > T_b)$ and $D(T_b)_t = 1(t = T_b + 1)$ where $1(\cdot)$ is the indicator function. The numbers in parenthesis are the *t* statistics.
2. The null hypothesis $\rho = 1$ is tested by the Perron (1997) test. *, **, and *** indicate significant at 10%, 5%, and 1% significance level, respectively. Critical values are from Perron (1997).

In Table 4 a casual inspection of T_b, the year at which the change in the intercept occurs, and δ, the change in the intercept in the following year, shows the impact of some of the historical events on the country risk ratings in the Middle East. In the next section, we analyze these impacts in more detail.

IV. Implications

The presence of unit root in the data of some developing countries suggests that the use of country risk rating in regression modeling is problematic. This is a significant finding given the many studies that use the measure of Institutional Investor to explain and predict country risk. Such models could potentially report only a spurious relationship if their dependent variable also follows a random walk process. The instability of country risk ratings for some countries in the Middle East is also indicative of these countries political and economic structures.

4.1 Dependency on Oil Stabilizes Country Risk Ratings

Do international banks' assessments of country risk follow a random walk in the Middle East? The answer largely depends on the sub-regional grouping of the countries being analyzed. The results show that NON-OPEC countries of the Middle East are more likely to exhibit unstable country risk ratings, in additional to being more likely to have less favorable country risk ratings, compared to their OPEC-member neighbors. This challenges previous proposition that country risk is likely to be adversely affected by a country's dependence on fuel exports (Haque et al. 1996). Furthermore, in the context of the Middle East, Kassicieh and Nassar (1982) claimed that the economic dependency of OPEC countries on oil has destabilized their economic and political structures because of fluctuating oil prices leading to debt repayment problems. Building on this argument, Alon et al. (1998) suggested that fluctuating revenues have made it difficult for the governments of OPEC countries in the Middle East to maintain their welfare states resulting in a disgruntled citizenry. In contrast to these arguments, the analysis in this

paper suggests that countries that have an internationally-recognized valuable commodity, such as oil, will actually benefit from less fluctuations in bankers' evaluations of their country risk structure. Given the importance of these countries to international oil prices, one may argue that industrialized nations' country risk ratings may be sensitive to OPEC's production policies instead.

As can be seen from Figure 1 and Table 2, out of the six OPEC countries, four (Saudi Arabia, United Arab Emirates, Kuwait, and Qatar) have been receiving consistently higher ratings than the NON-OPEC countries.

4.2 Sub-Regional Groupings in the Middle East

OPEC and NON-OPEC countries in the Middle East can be further grouped into smaller regions that can help explain the magnitude and stability of the ratings. From the standpoint of the country risk environment, Iran and Iraq stand apart from the rest of the OPEC countries due to the long lasting war they experienced in the 1980s. Among all 14 countries, the country risk rating for Iraq is the most volatile with the largest standard deviation, 16.29, and has been deteriorating over time. The two countries have been receiving relatively low credit ratings. Iraq emerged from its war with Iran, only to enter into a war with Kuwait and, later, the allied forces.

While initially most countries in the region declared neutrality, by 1982 the Gulf Cooperation Council had openly expressed financial and logistical support for Iraq. Jordan, Saudi Arabia, and Kuwait declared Iran an enemy of Arabism and Islam (Kassicieh and Nessar 1986). Using Institutional Investor's country risk correlation analysis, Alon et al. (1998) proposed a strong positive spillover effect of country risk

between Iraq and the Arab nations that supported it. This article does not find the outset of the Iran-Iraq war as a significant event leading to a structural change in the country risk ratings.

Among the Non-OPEC countries are the Arab-Israeli conflict countries. Egypt, Jordan, Syria, and Lebanon all share a border with Israel and have been directly involved in wars, land disputes (often stemming from religious disagreement) with Israel. These conflicts have destabilized the region and have made the region a less than desirable location for nesting international capital. Therefore, the country risk ratings of these countries on average are comparatively low. Alon et al. (1998) proposed that the improvements seen in the 1990s, and the strong correlation in the country risk ratings of Israel, Jordan and Egypt, are attributable to the peace treaties these countries signed, suggesting that a resolution to the conflict will lower the country risk environment of these countries and will spur regional economic growth.

4.3 Analyzing the Breakpoints in Country Risk

During the cold war, the Arabs militarily aligned themselves with the Russians, while the Israelis bought much of their weaponry and high-technology military equipment and airplanes from the United States. The collapse of the Soviet Union has changed the balance of power in the Middle East in favor of the Americans, who have tried to engineer a lasting and effective peace agreement in the region. The two largest beneficiaries of foreign aid from the U.S. are Israel and Egypt. Comprehensive peace in the Middle East will diminish the need to support these countries to gain a strategic foothold in the region.

Using a published chronology of events in the Middle East to eliminate an event selection bias, this section highlights the events that coincide with the breakpoints in the country risk structure of several countries. We analyze the years which have a multi-country effect by examining their association with specific political events in the affected countries, their neighboring countries, and countries that share a similar economic or political sphere, such as OPEC. Events are drawn from a published chronology in the Congressional Quarterly (2000).

1990 -- The Year of the Gulf War

Three out of the seven OPEC countries, Iraq, Qatar, and Kuwait, as well as Oman and Bahrain are impacted by the invasion of Iraq into Kuwait. In August 2, 1990, Iraq invades Kuwait which triggers an immediate international backlash including UN economic sanctions, U.S. forces entry into Saudi Arabia, a U.S. blockade, an Arab League vote to commit troops to Saudi Arabia, and pledges by Saudis, Kuwaitis and the Japanese to contribute billions of dollars to opposition forces. The military and financial support provided for Saudi Arabia has shielded its country risk ratings from deteriorating in the eyes of international bankers. Since Saudi Arabia is by far the largest producer of oil in OPEC, the international community had high stakes at preserving the stability of its borders.

While neighboring countries of Saudi Arabia did not seem to be in an immediate danger of attack, they did not receive the world's help and their country risk ratings experienced a structural change. Based on the Perron (1997) test, the risk ratings for Qatar, Oman, and Bahrain also experienced a downward break in the intercept terms,

supporting the findings of the spillover effect of Alon et al. (1998). The Iraqi invasion that led to the Gulf War was detected by T_b for both Iraq and Kuwait. The single largest year drop of 19 points in the rating for Kuwait from 1990 to 1991 (the so-called innovational outlier) was successfully captured by the unusually large negative δ of -17.79. In 1991, Iraq launched a scud attach against Israel, which may have contributed to a structural change in Israel's country risk ratings in that year. The Gulf War is partly responsible for a change in the behavior of country risk ratings by international bankers for six out of the 14 countries studied. This finding supports the argument that country risk ratings may spillover to related countries proposed by Alon et al. (1998). The Gulf war sent country risk shockwaves that spread beyond the borders of Iraq and Kuwait, perhaps starting a new era of regional political economy in the region.

1985 – OPEC Cuts Prices (Saudi Arabia and United Arab Emirate)

1985 features two OPEC meetings (July 25, and December 8) leading to price cuts in world's oil prices which are associated with positive impact in the country risk profile of two OPEC members, Saudi Arabia and United Arab Emirates. In July 31 Saudi Arabia announces that it will double production rate, and in December 8 OPEC countries abandon their official pricing policies leading to a 10% reduction in oil world prices. In September 1985 Saudi Arabia concluded an arms deal to buy $3-$4 billion worth of British combat aircraft, including forty-eight Tornado fighter bombers, after repeated attempts to buy U.S. F-15 fighters failed. The strengthening of Saudi Arabia military machine is correlated with an improvement in its country risk ratings.

V. Conclusions and Future Research

The present paper studies the stability of country risk ratings of countries in the Middle East. We check for unit root in the country risk ratings in order to examine the potential for spurious regression in the country risk literature. Indeed, the potential exists because the country risk ratings of some developing countries follow a random walk, even after adjusting for structural changes. The structural breaks identified by Perron (1997) test coincident nicely with the historical events in the Middle East countries. Our analysis of the country risk behavior in the Middle East reveals that Middle Eastern countries that depend on oil for revenues experience greater country risk stability, in addition to more favorable country risk ratings, compared to those in the region that do not have oil. Compared with East Asian countries, the Middle Eastern countries have a more stable country risk environment, despite the many inter and intra socio-political conflicts in the region.

Based on our findings, future research can be conducted to reexamine the regression analysis that involves country risk rating for countries whose risk ratings follow a random walk. Such regression could potentially report only a spurious relationship if both dependent variable and explanatory variables follow a random walk process, in which case a test for cointegration becomes necessary.

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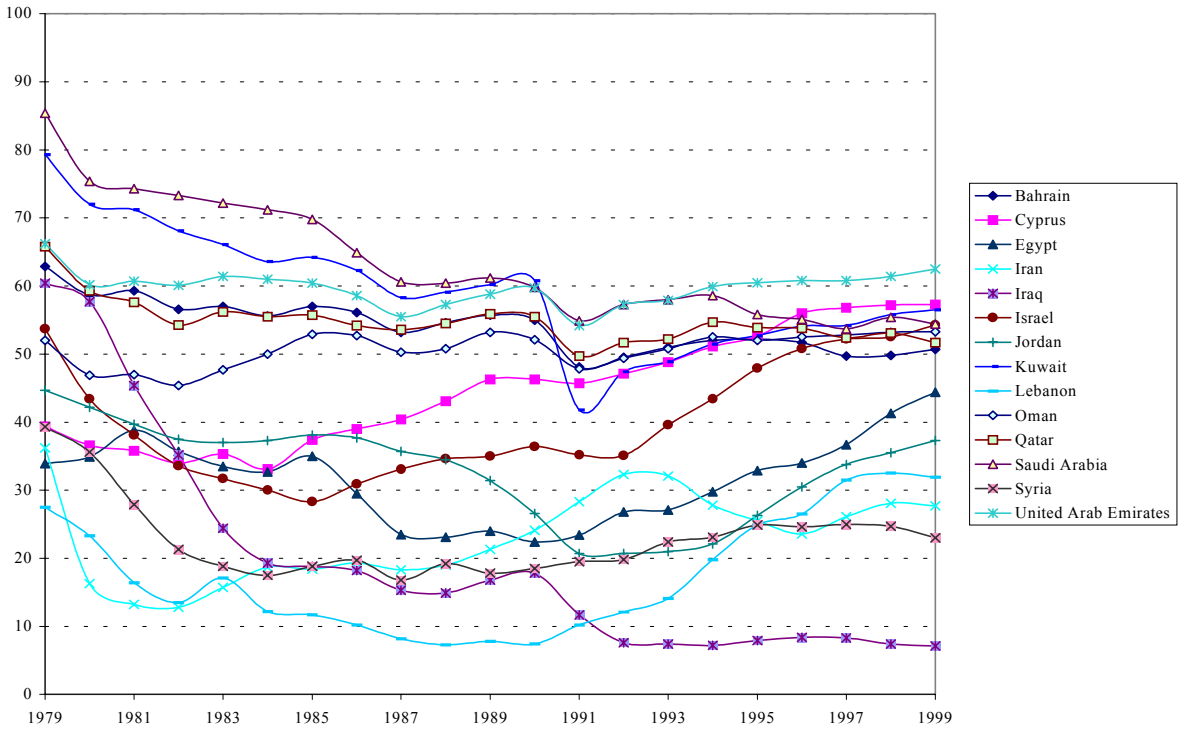

Figure 1. Middle East Countries Country Risk Ratings