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The Impact of Country Risk on Expected Return and Volatility: Evidence from Emerging Oil & Gas Stock Markets

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ABSTRACT

While many studies examined the impact of country risks on the predictability and volatility of national stock market returns, most of these studies have ignored Oil & Gas (O&G) emerging stock markets. Given the importance of the O&G economies in the global economy and the increased level of investors' interest in O&G emerging stock markets, this paper investigates the potential impact of country risk on the O&G emerging stock market return predictability and volatility. A sample of 10 emerging O&G stock markets are included in this study to examine the behaviour of these countries' monthly stock markets return in response to the changes in their related country political, financial, economic and credit risk rating over the period from January 2000 to December 2013.
Contrary to the common believe that stock returns depend on a single factor as suggested by the well-known single factor CAPM or that international stock returns depend only on the global market portfolio as suggested by the ICAPM, this study shows strong and significant evidences that country-specific political, financial, economic and credit risk drive emerging O&G stock market return and volatility. Results show that political risk an essential rule in predicting stock market return and volatility of all O&G stock markets under investigation. Portfolio managers and investors must therefore take country risk into consideration in addition to the conventional variables that are often used to analyse equity investments when making portfolio investment decisions in emerging markets.

Keywords: Return predictability, Return volatility, Emerging markets, Country political risk, Financial risk, Economic Risk, Credit rating, And oil & gas economies.

1. Introduction

Emerging market economies are considered riskier than developed market economies because of their high uncertainty, illiquid capital markets, foreign exchange controls and high levels of political risk as mentioned by El-Sady et al. (2003a,c). Differences between emerging and developed capital markets raise concerns as to whether models of equity analysis and valuation that have proven successful in developed markets can also be applicable in emerging markets. One of the major assumptions of most equity valuation models is that capital markets are efficient. The fact that emerging capital markets are highly illiquid calls into question the efficiency of emerging capital markets and thus the applicability of asset pricing models to emerging markets. It is obvious that lack of an efficient market poses challenges to equity analysis and valuation in emerging markets. These challenges mean that a new set of models that

can carter for the challenges posed by emerging economies are needed for sound analysis and valuation of their stock markets.

The globalisation of capital markets has led to a tremendous increase in cross border capital flows. In particular, emerging markets have gained significant attention from both companies and individual investors in recent years. The growing interest in emerging capital markets is driven by the potential for economic growth offered by emerging markets. While this growth potential offers opportunities for investors in term of better returns and diversification benefits, it also poses challenges to both analysts and investors due to a number of issues that are specific to emerging markets. It was argued by Girard & Omran (2007) that the outcomes of investing in emerging markets have more uncertainty than developed markets. This uncertainty is driven by the unknown political and economic situations and unstable exchange rate of emerging markets. Sirmans and Worzala (2000) and El-Sady *et al.* (2003a) explained that although international diversification to emerging markets may seem attractive, the risks of diversification into these markets must be overlooked.

As their name implies, emerging market economies are still striving to attain parity with their developed market counterparts as far as a range of issues are concerned. Financial liberalisation and globalisation have led to a tremendous increase in international capital flows as companies and investors attempt to take advantage of higher profitability and returns on equity in different countries. However, these higher profits and stock returns come at a cost. While it is possible for funds to diversify their investments to other countries so as to make higher profit, the benefits associated with cross-border investment are hindered by heightened levels of political, financial, and economic risk. El-Sady *et al.* (2003b) documented that these risks have negative impacts on stock return volatility as well as its predictability. In his investigation of country risk, Erb *et al.* (1996a) shows that country risk has become increasingly important, given the increasing global nature of portfolio investments. It was shown by Erb *et al.* (1996b) that in order for an international portfolio to be designed, the investor or analyst must have deep understanding of the country risks of each country included in the portfolio.

Since O&G play a major role in the global economy today, the price fluctuations of O&G can significantly influence the movement of stock returns of O&G economies. Many O&G countries are today classified as emerging markets. While O&G emerging stock markets provide opportunities for higher expected returns, these markets are also characterised by intensified levels of country risks. For example, Iraq, Iran and Kuwait have witnessed outbreaks of wars and other instabilities, thereby increasing their country risks. Nigeria too has been, in the recent time, characterised by outbreaks of violence in regions that have oil wells thus increase its country risk. By understanding how risk in O&G countries can affect investment returns, one can better understand how to include these countries in a global portfolio so as to obtain maximum diversification benefits. This paper is organised into six sections. The introduction has been covered in section (1) above. Section (2) reviews the conceptual and empirical framework, while section (3) focuses on the research methodology design and data description. In section (4), the analysis of empirical results and findings are provided while the conclusion of this study is provided in section (5).

2. Literature Review

It is generally believed that emerging stock markets offer a host of investment opportunities because of their high growth rates when compared to developed economies. As illustrated by Moles and Terry (1997), the term emerging markets refers to generic terms for developing countries which are attracting foreign portfolio investment. Developed economies differ from emerging economies in that they have an established market based economies along with a functioning stock market. The International Monetary Fund (IMF) estimates that more than 85% of the world's population live in emerging markets. Despite their large share of the global population, emerging markets account for less than 40% of the world's gross domestic product and less than 12% of the world's aggregate stock market capitalisation. In addition, emerging stock markets are likely to be both illiquid and highly volatile. Thin trading and limited experience on the part of investors and market regulators makes emerging markets even riskier than developed stock markets, as explained by Moles and Terry (1997).

Foreign investment into emerging markets can be faced by one or more of four main categories of country risk: Market, Economic, Currency, or/and Political risk. Market risk refers to information about the company's exposure to changes in interest, exchange rates, commodity and equity prices ... etc., which could affect risk-sensitive business. Hoti (2005) refers to economic risk as the volatility of internal and external macro variables. Internal variables include unexpected changes in monetary policy; the exchange rate regime; and fiscal policy changes. External variables include unanticipated changes in supply and

demand; trade deficits, fluctuations in the global economic environment and natural disasters. Hoti (2005) indicates that relative size of government budget deficits, the rate of change of the supply of money, as well as the rate of capital inflows/outflows are used to measure economic risk.

The fluctuation of exchange rates, known as currency fluctuations, has caused currency risk, which is considered the most common risk of overseas investment and also causes international financial instability. Thus, currency risk can be defined as risk of unanticipated changes in relative currency values and this creates a number of problems in international investment. The increase in international operations means that virtually all firms have to deal with foreign exchange rate risk. Both investors and managers have become increasingly concerned with exchange rate fluctuations. As argued by Pantzalis et al. (2001) investors are concerned with the impact of exchange rate fluctuations on the values of their portfolios, while managers are concerned with the overall impact of exchange rate fluctuations on the value of the investment. Also, it was argued by Smith and Stulz (1985) and Stulz (1996) that degree of risk aversion creates an incentive for both investors and managers to manage exposures to exchange rate fluctuations.

An in-depth analysis of how political risk assessment can be conducted is presented by Tsai and Su (2005) for five East Asian countries. Given the poor political environment of the region, it is likely that foreign investors may be unable to achieve the full benefits promised by the East Asian region. Hong Kong, Taiwan, China and Korea were considered countries with very poor political climates, which limit the ability of companies to benefit from the promising economic growth of these countries. Tsai and Su (2005) conclude that, assessing political risk is very important for port businesses in particular as well as for the overall business environment of the examined East Asian countries.

The impact of country political; economic and financial risk on the stock return volatility and predictability in emerging markets was examined by El-Sady *et al.* (2003a,c). These studies provide guidance on how the consideration of 10 Middle East and African (MEAF) and 7 Latin American emerging stock markets can add to the international portfolio return and reduce its volatility. El-Sady *et al.* (2003a,c) concludes that country political, financial and economic risks have significant effects on emerging stock market return predictability and volatility. Erb *et al.* (1996b) capitalizing on institutional investor's country credit ratings developed a model to predict expected hurdle rates on investments within emerging market. The developed model of Erb *et al.* (1996b) combines expected hurdle rate with the expected volatility. Erb *et al.* (1996a) explored the information content of country political, economic, financial, composite risk and credit rating and their impact on global investment strategies. Evidences provided by Erb et al., (1996a) suggest that country risks are important factors in predicting stock market returns. In addition, the study observes differences in the magnitude of the impact of different risk measures on the expected stock market return. Bali and Cakici (2010) examine the capability of the ICAPM to price world market risk; country-specific risk, and country-specific idiosyncratic risk, results provide evidences that the world market risk is not priced by the ICAPM.

In conclusion and based on the foregoing discussion, most studies of the factors that predict stock market returns and volatility have focused mainly on systematic risk factors, while a few studies have paid attention to emerging country-specific risk. Considering the importance of O&G economies and their potential impact on international portfolio investment and diversification, it is important to understand how country risk can affect emerging O&G stock markets return and volatility.

3. Research Methodology and Data Description

The International Assets Pricing Model (ICAPM) relates the country stock market return directly to the country risk premium coefficient β. In an international setting β is defined as the covariance between the return of the national market index and the return of the global portfolio or index. Although ICAPM is widely used to predict national equity markets returns, empirical research suggest that the country risk coefficient, β is not the only and most effective factor to determine the national stock market return. El-Sady et al. (2003b), Lessard, D. (1973), Harvey, C. (1995) Richards, A. (1996), De Santis, G. and Imrohoroglu, S. (1997) and Rouwenhorst, K. (1999) provided strong evidence against the ICAPM. These studies show strong evidence that local country factors and information tend to have more predictive power of the national stock market return than the world factors and information. Evidences were provided from developed markets as well as emerging markets. It was shown by El-Sady et al. (2003a,b,c) provide evidences from emerging and developed markets showing that specific country political, financial and economic risk factors have more predictive power to estimate its stock market return and volatility than world factors used by the regular ICAPM. Our study adopts the approach of El-Sady et al. (2003a) who tested the relationship between country specific risk and stock market returns.

Our attention is focused on how financial, political and economic risk can affect returns and volatility in emerging O&G stock markets.

According to the ICAPM, the expected rate of return in the national equity market is directly related to the country risk premium coefficient (β). β can be estimated using equation (1):

$$E(R_{i,t}) - R_{f,t} = \beta_i (R_{w,t} - R_{f,t}) = \frac{Cov(R_{w,t}, R_{i,t})}{\text{var}(R_{w,t})} \{E(R_{w,t}) - R_{f,t}\} \qquad (1)$$

Where ($R_{i,t}$) represents a vector of country i's monthly rates of return, ($R_{f,t}$) represents a vector of country *i's* monthly risk free rate of return, ($R_{w,t}$) represents a vector of monthly rates of return on the world market portfolio and (β_i) is the sensitivity of the excess return on country *i* to movements in the world market portfolio, which is also known as the unconditional β. Equation (1) can be presented as followed:

$$E(R_{i,t}) = R_{f,t} + \frac{Cov(R_{w,t}, R_{i,t})}{\text{var}(R_{w,t})} \{E(R_{w,t}) - R_{f,t}\} \qquad (2)$$

To estimate β's conditioning on the local and global information sets, the conditional mean returns are calculated. Each country's conditional mean return is calculated using world information (I^w) and country political, financial and economic risk information (I^l) sets. Assuming that capital markets of the countries under investigation are integrated with world capital markets, one would expect that each country returns can be predicted by a single factor as suggested by the ICAPM. The single factor in this case will be the world market portfolio. Based on this assumption, one can therefore state the hypothesis as follows:

a. *H_0: The returns on emerging O&G countries can be determined solely by the world portfolio return.*

H_a: The returns on emerging O&G countries do not depend on the world portfolio return.

We argue that capital markets are segmented which means that global capital markets do not affect individual country returns. If our argument holds, the country index returns should be determined solely by country specific risk factors such as country political, economic, and financial risk and country credit rating. This can be stated in the form of the following hypothesis:

b. *H_0: The returns on emerging O&G countries are determined solely by country-specific risk.*

H_a: The returns on emerging O&G countries do not depend on country-specific risk.

Since the second hypothesis deals with four separate country risk rating, it is important to state how each one is likely to affect the country stock market return. Starting with political risk rating, it is obvious that instability and low rating of O&G countries political risk such as expropriation risk, political instability, wars, terrorist threats and other factors would have negative impact on the stock market returns. Consequently, one expects to observe a positive and significant coefficient between political risk rating and country stock market returns. In other words, the high country political risk rating (politically safe) will attract more capital to be invested in the stock market, leading to higher stock market return. In contrast, an increase in the political risk in term of volatility is likely to result a decline in the stock market returns, which should be reflected, in a negative relationship between stock market return and the country political instability. In like manner, the relationship between economic and financial risk and country stock market returns should also be positive in term of rating and negative in term of instability. Finally, a decline in the credit rating should increase the required risk premium and a higher country returns while an upgrade in credit rating should result to a decrease in the required risk premium and a lower country returns. In conclusion, the high ratings of country political, financial and economic risk variables should have a positive impact on country stock market returns, while their instability should impact the country stock market return negatively. In term of credit rating, we argue that it has a negative impact on country stock market returns as explained by lower (higher) risk premium for higher (lower) credit rating.

To examine the relationship between stock market return volatility and country risk, a number of volatility prediction models have been proposed. These include amongst others the exponentially weighted moving average model, the moving average model, Autoregressive Conditional Heteroskedastic (ARCH) model and the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) model. Engle (1982) suggests that volatility could be modelled using the Autoregressive Conditional Heteroskedastic (ARCH) model. Due to inherent limitations, the ARCH model was further developed by Bollerslev (1986) and Engle and Bollerslev (1986) into a generalised version known as GARCH model.

The main problem with the ARCH is that is focuses only on the mean of returns. On the contrary, GARCH models enable one to conduct a joint estimation of the conditional mean and variance of returns as argued by Engle and Bollerslev (1986) and Bollerslev (1986 and 1990). According to the GARCH, error terms of the autoregressive estimate of the first moment are normally distributed with an expected value of zero whereas variance varies over time.

Assuming that the returns follow an autoregressive process, Engle (1982) showed that the autoregressive model could be stated as follows:

$$r_t = \alpha + \sum_{i=1}^{q} \beta_i r_{t-i} + \varepsilon_t \quad (3)$$

Subject to $\alpha > 0;\ \beta_i \geq 0;\ i > 0,$ *where* ε_i is the return residuals. Once the conditional mean equation has been estimated, the conditional variance can be modelled using the following model:

$$\sigma_t^2 = \alpha + \sum_{i=1}^{q} \beta_i \varepsilon_{t-i}^2 \quad (4)$$

The null hypothesis tests whether there is persistence in volatility (ARCH effects) over time by testing the significance of the beta coefficient β_i. A significant β_i indicates that there are ARCH effects, which mean that the volatility is persistent over time. Engle and Bollerslev (1986) and Bollerslev (1986) extended GARCH model as follows:

$$\sigma_t^2 = \alpha + \sum_{i=1}^{p} \beta_i \varepsilon_{t-i}^2 + \sum_{i=1}^{q} \gamma_i \sigma_{t-i}^2 \quad (5)$$

The GARCH model can be estimated using the Maximum Likelihood model as argued by Beltratti and Morona (1999). The Maximum Likelihood model assumes that the variables are conditionally normal stated by Bollerslev (1990) as follows:

$$L(\theta) = -\frac{TN}{2} \log 2\pi - \frac{1}{2} \sum (\log |H_t| + \varepsilon_t' H_t^{-1} \varepsilon_t) \quad (6)$$

Where θ represents all the unknown parameters in ε_i and H_i. Under standard regularity conditions the maximum likelihood estimate for θ is asymptotically normal and traditional inference procedures are immediately available. Using the GARCH model specified above, the out-of-sample forecasts of volatility can be obtained using the GARCH model as suggested by McMillan et al. (2000) and as presented by:

$$\sigma_{t+1}^2 = \alpha_T + \sum_{i=1}^{p} \beta_T \varepsilon_{t-i+1}^2 + \sum_{i=1}^{q} \gamma_i \sigma_{t-i+1}^2 \ \ t = T+1,...,T+\tau-1 \quad (7)$$

Although GARCH models are non-linear in the conditional mean error term, McMillan et al. (2000) argue that there is a linear relationship between the forecast volatility, previous forecasts of volatility, and current and lagged measured volatility in response to news. Black (1972) argues that positive and negative shocks of equal magnitude have different effects on the volatility of a stock's price, which can be as a result of leverage. In addition, McMillan et al. (2000) evidenced that stock return series tend to exhibit a negative skewness, due possibly to the fact that stock market shocks are greater in absolute size and occur more frequently and more quickly than booms. The Threshold GARCH (T-GARCH) is a model that is used for capturing the above features in stock return series. The first order threshold T-GARCH model for forecasting volatility can be expressed as follows:

$$\sigma_{t+1}^2 = \alpha_T + \sum_{i=1}^{p} \beta_T \varepsilon_{t-i+1}^2 + \eta I_t \varepsilon_t^2 + \sum_{i=1}^{q} \gamma_i \sigma_{t-i+1}^2 \quad (8)$$

Where $I = 1$ when $\varepsilon_1 > 0$ and $I=0$ when $\varepsilon_1 < 0$. In the TGARCH (1,1) case, where positive news has an impact of β_1 on volatility while negative news has an impact of $\beta_1 + \gamma$. For more discussion on component GARCH and other GARCH specifications, see McMillan et al. (2000). Once the volatility time series has been obtained using the GARCH (1,1) specification described above, the relationship between volatility and the country risk variables will be studied using the following regression model:

$$\sigma_{i,t}^2 = \alpha_i + \sum_{j=1}^{n} \beta_{i,j} X_{i,t} + \varepsilon_{i,t} \quad (9)$$

Where $X_{i,t}$ represents a vector of country *i* risk variables *at* time *t*. $\beta_{i,j}$ measures the sensitivity of volatility to the j^{th} country risk variable for country *i*.

To serve the purpose of this study, GARCH(1,1) is used to investigate the relationship between the volatility of O&G stock market returns and their specific countries political, financial, economic and country credit ratings. We assume that volatility of each emerging O&G country political, financial, economic and country credit risk rating has positive impact on its stock market return volatility. Based on this assumption, one can therefore state the hypothesis formally as follows:

c. *H_0: Stock market returns volatility of emerging O&G countries are determined by the volatility of the political, financial, economic risk and country credit rating.*

H_a: Stock market returns volatility of emerging O&G countries do not depend on the volatility of the political, financial, economic risk and country credit rating..

In conclusion, this study will capitalize on the ICAPM to predict each O&G stock market return, at the first step. In order to investigate the predictive power of country risk, this study extended the CAPM model to include country political, financial and economic risk variables to explore whether country returns depend on country risk variables or not. The study will use the GARCH(1,1) model to investigate the relationship between stock market return volatility and country risk variables.

Data includes the following 10 O&G countries; Russia, Iran, United Arab Emirates, Venezuela, Algeria, Nigeria, Argentina, Malaysia, Ecuador and South Africa. Country risk data obtained from the ICRG database and constitutes political, financial and economic risk and country credit ratings. The data also includes the monthly return for each country's index and for the world portfolio. In order to estimate the excess return on each country's stock index, the monthly risk free rate is obtained for each country. The monthly return of the world portfolio is obtained from Morgan Stanley Capital International (MSCI) index while the monthly return of each country's index is extracted from the Emerging Market Database of the International Financial Corporation (IFC) for the period from January 2000 to December 2013.

4. Analysis of Empirical Results and Findings

Table (1) illustrates the descriptive statistics of the monthly stock market return of the O&G countries under investigation. For all countries, mean returns are positive indicating that stock markets are performing well on average. The Std. Dev. is significantly very high compared to the mean returns of related country suggesting significant deviations from the mean. This indicates that stock markets of investigated countries are very risky. Table (1) shows that Iran, UAE, Venezuela, Algeria, Argentina, Malaysia, Ecuador and South Africa returns are negatively skewed. The negative Skewness of return in these countries means that investors are likely to exhibit frequent small gains but large frequent losses. The only countries with such returns distributions are Russia and Nigeria. The excess Kurtosis of the returns distributions are higher than 3.0 for all countries under investigation suggests that return distribution is more peaked than normal.

For each O&G country; while alphas represent the constant of the ICAPM, betas represent the standardized covariance between the country return with the world portfolio return as illustrated by equations (1) and (2). Results reported in table (2) document a positive relationship between monthly return of each O&G stock market under investigation and the monthly return of the global market portfolio. Although alphas have positive coefficient for all countries under investigation, it is significant at 1% level for Argentina, Malaysia, Ecuador and South Africa, while it is significant at 5% level for Nigeria. Although Russia, Iran, UAE, Venezuela and Algeria have positive alphas, these alphas are not significant at any level. This shows that although the monthly return of these countries' stock markets outperforms the global market portfolio, investors who are searching for excess returns cannot depend on them for superior performance of their investments. On the contrary, Nigeria, Argentina, Malaysia, Ecuador and Malaysia exhibit significantly high alphas indicating that their stock market return significantly outperform the global benchmark portfolio. Therefore, investors can include this O&G stock markets in their portfolios to enhance portfolio returns.

Table-1. Descriptive Statistics of O&G Stock Markets Monthly Return:

	Russia	**Iran**	**UAE**	**Venezuela**	**Algeria**
Mean	1.495	1.014	1.167	1.109	1.189
Median	1.632	1.358	1.094	1.401	1.389
Maximum	36.54	23.64	26.53	20.92	31.86
Minimum	-21.48	-20.20	-21.55	-22.28	-23.03
Std. Dev.	8.711	6.543	6.301	6.321	8.101
Skewness	0.287	-0.061	-0.108	-0.753	-0.187

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Kurtosis	4.785	4.083	4.958	4.875	5.092
	Nigeria	Argentina	Malaysia	Ecuador	South Africa
Mean	0.409	1.083	1.201	1.144	1.366
Median	0.501	1.095	1.175	1.356	1.124
Maximum	32.98	26.61	20.14	25.22	25.88
Minimum	-23.92	-20.09	-18.07	-21.21	-21.97
Std. Dev.	8.412	6.388	6.002	6.098	7.019
Skewness	0.100	-0.027	-0.302	-0.201	-0.294
Kurtosis	4.802	4.801	3.998	4.897	4.458

Source: Authors calculation based on published monthly data from January 2000 to December 2013.

Beta coefficients as shown by table (2) are positive and significant at 1% level for all emerging Gas & Oil stock market included in this study. As it can be observed from table (2) with the exemption of South Africa, the return of all examined emerging O&G stock markets outperform the global market portfolio with their positive betas greater than one. Only South Africa has beta less than one which indicate that the return of the global market portfolio outperform the return on South Africa stock market. Beta coefficients reported in table (2) indicate that investors who are agreeable to maximize their benefits from investing in the emerging O&G stock markets included in this study should include Russia, Iran and UAE at first, since they have the highest beat coefficients of 1.564, 1.428 and 1.422, respectively. Investing in Venezuela, and Argentina and Nigeria' stock markets will increase the return of international investor by less than the first group of countries since they have moderate beta coefficients of 1.296, 1.265 and 1.208, respectively. Lastly, Malaysia, Algeria and Ecuador contribute the lowest benefits to the investors investing in these countries with their low beta coefficients of 1.159, 1.127 and 1.064, respectively.

The significant and high alpha coefficients of Nigeria, Argentina, Malaysia, Ecuador and South Africa are an indication of that stock market returns of these countries are not well explained by the global market portfolio as suggested by the ICAPM. Therefore, other variables such as the country risk factors discussed earlier could be potential variables that can be used to explain the significantly high alpha values. The high R-Squares reported by table (2) indicate that the model explains a significant portion of the stock market returns of different countries under investigation. Therefore, the ICAPM can be considered as a good starting model to predict the behaviour of emerging O&G stock markets returns.

Table-2. Estimated Coefficients of the ICAPM

Country	**Alpha**	***Beta***	**R-Squared**
Russia	0.467	1.564***	0.827
	(0.627)	(0.158)	
Iran	0.621	1.428***	0.739
	(0.643)	(0.109)	
UAE	0.529	1.422***	0.682
	(0.275)	(0.078)	
Venezuela	0.578	1.296***	0. 527
	(0.286)	(0.045)	
Algeria	0.263	1.127***	0.902
	(0.170)	(0.043)	
Nigeria	1.141**	1.208***	0.583
	(0.439)	(0.088)	
Argentina	0.925***	1.265***	0.679
	(0.302)	(0.064)	
Malaysia	0.919***	1.159***	0.796
	(0.228)	(0.101)	
Ecuador	0.861***	1.064***	0.793
	(0.352)	(0.050)	
South Africa	0.659***	0.938***	0.897
	(0.312)	(0.039)	

This table presents the estimated coefficients of the ICAPM. *, **, and *** are Statistical Significance at 10%, 5%, and 1% levels. Figures in parentheses correspond to the standard errors of the estimated coefficients.

Table (3) illustrates the estimated coefficients of each O&G country Political Risk (PR), Financial Risk (FR), Economic Risk (ER) and Country Credit Rating (CCR) model to predict related stock market return. As reported by table (3), while the constants of the country risk model for Russia, Iran, Nigeria and Argentina are significant at 1% level, it is significant at 5% level for Venezuela and Malaysia; and significant at 10% level for UAE. For Algeria, Ecuador and South Africa, positive constants reported by table (3) are not significant at any level. For all countries, except Russia, reported results by table (3) explain that the constant of the model to predict stock market return using country risk is less than the constant of the model to predict stock market return applying ICAPM as shown by table (2). This means that country risk model has better explanation of emerging O&G stock markets, except Russia, return than the world portfolio return as assumed by the ICAPM. The lower constant of Russian prediction model of its stock market return using ICAPM than country risk model can be explained by the higher integration of the Russian stock market with the world economy more than the rest of the O&G stock markets included in the study.

Since hedging tools against political risk do not exist, investors will not allocate their capital in countries with high political risk (low political risk rating). Therefore, higher political risk rating should attract more capital to be invested in emerging markets driving up their markets return. As a result, one should expect a positive relationship between emerging markets political risk rating and their stock markets return. Reported results by table (3) illustrate that political risk rating coefficients of each O&G country are positive and significant at 1% level, except for Malaysia where it is significant at 5% level. The positive coefficients of political risk rating means that the higher (lower) political risk rating, the higher (lower) related stock market return in the investigated O&G countries. The positive political risk coefficients shown by table (3) are consistent with our argument that higher political risk rating, meaning lower political risk, will attract more capital to be invested in the emerging O&G stock market, which in turn will put upward pressures on the returns of these emerging stock markets.

As shown in table (3), O&G stock market return is explained by political risk more than financial, economic risk and country credit rating. For all countries under investigation, the positive and significant coefficients of each country political risk are higher than the coefficients of the other risk measures. As it is illustrated by table (3), a one unit increase (decrease) in the political risk of Algeria, Russia, Venezuela, UAE, Nigeria and Iran will increase (decrease) the related stock markets return by 1.123, 1.108, 1.083, 1.065, 1.056 and 1.026 respectively. For Malaysia, Argentina, Ecuador and South Africa a one unit change in the political risk will change the country stock market return by 0.978, 0.946, 0.941 and 0.918 into the same direction, respectively

Unlike the case of political risk, table (3) shows mixed relationships between financial risk rating and the return of emerging O&G stock markets. Reported results by table (3) show that stock market returns of Russia and Algeria are positively affected by their financial risk rating at 1% level of significance. The coefficient of 0.273 in the Russian case and 0.182 in the Algerian case indicates that financial risk rating has more impact on the stock market return in Russia than in Algeria. Also, the return of Venezuela stock market exhibits positive relationship with its country financial risk rating. However, table (3) shows that the positive exposures of Venezuela stock market return to its financial risk are not as significant as those for Russia and Algeria. While Russia and Algeria's coefficients are significant at 1%, it is only at 5% for Venezuela. For Iran and UAE stock market returns, the positive exposure to financial risk is not significant at 1%, 5% or 10% levels. Given reported results in table (3), we can conclude that as the O&G countries' financial risk rating increases, the return of their emerging O&G stock market increases. This positive relationship could be explained by investors' confidence in the political stability of these countries; encouraging them to allocate more capital in these countries, driving up these emerging stock markets return.

In term of financial risk, unlike the cases of Russia, Iran, UAE, Venezuela, and Algeria where stock market returns exhibit positive exposure to financial risk, table (3) show that stock market returns of Nigeria, Argentina, Malaysia, Ecuador and South Africa have negative exposure to their country financial risk. It is shown by table (3) that negative coefficients of Nigeria, Argentina and Malaysia stock market return to financial risk are significant at 1% level, while it is significant at 5% level for Ecuador. Although South Africa stock market return is negatively exposed to financial risk, it is not significant at any level. Table (3) evidences that financial risk has higher negative impact on Malaysia and Argentina stock market return with the high coefficients of -0.183 and -0.158 respectively, than on Ecuador and Nigeria stock market return with their low coefficients of -0.114 and -0.125, respectively. The significant and positive coefficients of Russia, Venezuela and Algeria financial risk rating are consistent with the stated hypothesis. conversely, the negative coefficient of Nigeria, Argentina, Malaysia and Ecuador could be attributed to the investors' anticipation of higher expected returns during the periods of investigation to

compensate for the extra financial risk resulted from lower financial risk rating that is borne by investing in emerging O&G stock markets.

Coefficients of economic risk reported in table (3) are consistent with the findings of financial risk. It is shown that stock markets return of Russia, Iran, UAE, Venezuela, and Algeria have positive and significant coefficients at 1% level with their economic risk. As shown by table (3), economic risk has more positive impact on Algeria and Venezuela stock market returns with their coefficients of 0.813 and 0.651 respectively, than on UAE, Russia and Iran where they have lower coefficients of 0.488, 0.415 and 0.400 respectively. The significant and positive coefficients of Russia, Iran, UAE, Venezuela and Algeria economic risk rating are consistent with the stated hypothesis. For Nigeria, Argentina, Malaysia, Ecuador and South Africa stock market return, reported results by table (3) show negative and significant coefficients with their economic risk rating. These negative relationships between economic risk and stock market return are significant at 1% level. The negative impact of South Africa and Ecuador economic risk rating on their market return is high as they are indicated by the high negative coefficients of -0.788 and -0.687, respectively. Lower negative impact of economic risk rating on the stock market return is evidenced in the case of Malaysia, Argentina and Nigeria with their negative coefficients of -0.464, -0.453 and -0.289. Again, one possible explanation of these negative coefficients could be the demand for a risk premium by investors who need to be compensated for bearing economic risk when investing in emerging O&G countries.

For all countries included in this study, economic risk rating has more impact on the related country stock market return than financial risk. As shown by table (3), the positive and significant economic risk coefficients of Russia, Iran, UAE, Venezuela and Algeria are higher than the positive and significant financial risk coefficients for each country. For Nigeria, Argentina, Malaysia, Ecuador and South Africa table (3) shows a higher significantly negative economic risk coefficients tan financial risk coefficients for each related country.

Table (3) shows that country credit rating coefficients are negative and significant at 1% for all countries except Venezuela and Malaysia, where it is significant at 5% level. This is consistent with the null hypothesis that a decline in the credit rating should result an increase in the required risk premium and a higher country returns while an upgrade in credit rating should result to a decrease in the required risk premium and a higher country returns. For all O&G countries included in the study, country political, financial and economic risk rating have more explanatory power of their related stock market return as than the country credit rating. Reported results by table (3) show higher coefficients of each country political, financial and economic risk than the coefficient of country credit rating.

All the stock market indexes in all countries under investigation have positive alphas. This shows that the country risk model still leaves some unexplained portions of returns. These alphas are significant for Russia, Iran, Nigeria and Argentina at 1%; significant for Venezuela and Malaysia at 5%; significant for the UAE at 10%; and not significant for Algeria, Ecuador and South Africa at any of the specified levels of significance. The significant alphas indicate that country risk model cannot completely predict the movement of stock returns in emerging O&G countries. It is likely that some of the returns are explained by the ICAPM model that employs the global market portfolio as the main factor that affects national stock market returns. Compared to the global market portfolio, as shown by the ICAPM, the country risk model performs better in explaining the cross-section of stock returns. The R-Squares of the country risk models for all countries are significantly better than the R-Squares observed when the ICAPM was applied. The evidence suggests that markets are more or less segmented rather than integrated as suggested by the ICAPM. This explains why the country risk model appears to explain a significant portion of the variability of the stock market returns.

Table-3. Estimated Coefficients of Country Risk Model:

Country	Alpha	PR	FR	ER	CCR	R-Squared
Russia	0.747***	1.108***	0.305***	0.415***	-0.191***	0.821
	(0.102)	(0.045)	(0.034)	(0.064)	(0.033)	
Iran	0.612***	1.026***	0.040	0.389***	-0.084***	0.708
	(0.096)	(0.054)	(0.056)	(0.058)	(0.031)	
UAE	0.482*	1.065***	0.109	0.488***	-0.151***	0.687
	(0.225)	(0.051)	(0.061)	(0.096)	(0.035)	
Venezuela	0.405**	1.083***	0.147**	0.642***	-0.083**	0.811
	(0.049)	(0.049)	(0.121)	(0.106)	(0.041)	

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Algeria	0.052	1.123***	0.168***	0.813***	-0.258***	0.902
	(0.067)	(0.039)	(0.161)	(0.053)	(0.038)	
Nigeria	0.429***	1.056***	-0.125***	-0.289***	-0.138***	0.954
	(0.138)	(0.025)	(0.039)	(0.028)	(0.019)	
Argentina	0.573***	0.946***	-0.158***	-0.453***	-0.090***	0.899
	(0.153)	(0.044)	(0.042)	(0.049)	(0.023)	
Malaysia	0.384**	0.978**	-0.183***	-0.464***	-0.071**	0.788
	(0.175)	(0.041)	(0.051)	(0.044)	(0.033)	
Ecuador	0.254	0.941***	-0.114**	-0.687***	-0.087***	0.901
	(0.171)	(0.039)	(0.049)	(0.051)	(0.030)	
South Africa	0.325	0.918***	-0.017	-0.788***	-0.198***	0.824
	(0.239)	(0.059)	(0.073)	(0.054)	(0.037)	

This table presents the estimated coefficients of the Country Risk Model. *, **, and *** are Statistical Significance at 10%, 5%, and 1% levels. Figures in parentheses correspond to the standard errors of the estimated coefficients.

Table (4) shows the estimated parameters of GARCH(1,1) of the 10 O&G countries political, financial, economic and country credit rating volatility. A regression of the monthly standard deviation of the 10 O&G stock markets return series against the standard deviation of O&G country risk variables was conducted. It can be observed that the volatility of the different country returns depends significantly on the volatility of it related country political, economic, financial risk and country credit rating.

Reported results by table (4) show that at level of 1% significance, there is a positive relationship between the volatility of each O&G stock market return and the volatility of its specific country political and financial risk. The significant and positive political risk volatility for all countries under investigation, as shown in table (4), is consistent with the theory in that significant changes in political risk can trigger significant market movements, thus leading to an increase in the stock market return volatility. Financial risk also exhibits a significant positive relationship with volatility for all countries under investigation suggesting that financial risk also contributes positively to emerging O&G stock markets return volatility. It was evidenced by reported results in table (4) that political risk volatility has more impact on the country stock market return volatility than the volatility of the financial risk. For all countries included in the study, the coefficients of country political risk are higher than the coefficients of the same country financial risk.

As concerns economic risk, it can be observed from table (4) that Russia, Iran and Nigeria have negative relationships between their return volatility and economic risk, which is inconsistent with our assumption. Although table (4) shows that Russia, Iran and Nigeria have negative coefficients, these negative relationships are insignificant at any level. Consistent with our assumption, the volatility of the rest of the emerging O&G stock market returns exhibit a positive relationship with their related countries economic risk. The positive coefficients of UAE, Venezuela, Algeria, Argentina, Malaysia, Ecuador and South Africa are significant at 1% level.

As shown by table (4), the significant volatility of O&G stock market return is driven positively by related country political risk followed by financial risk while economic risk has the minimum impact on it. Russia, South Africa and Nigeria political risk has the highest impact on their related stock market return volatility as one unit change in the political risk will increase the volatility of related stock markets return volatility by 1.363, 1.100 and 1.047 respectively, followed by Iran, Argentina, Algeria, UAE and Ecuador with their coefficients of 0.991, 0.949, 0.941, 0.924 and 0.920 respectively. Malaysia and Venezuela with their low coefficients of 0.879 and 0.794 show less response to the political risk, as illustrated by table (4). Given reported results by table (4), the volatility of stock market return of Russia, Nigeria, South Africa, Iran and UAE is high exposed to financial risk, where one unit change in the financial risk will change the volatility of return of their stock markets by 1.208, 0.944, 0.897, 0.870 and 0.820 of that unit respectively. The financial risk has less impact on the volatility of return for Algeria, Argentina, Venezuela, Ecuador and Malaysia. While economic risk showing less impact than political and financial for all O&S stock markets returns under investigation, South Africa shows the opposite.

Examining the country credit ratings of all the countries under investigation, table (4) shows negative relationship between monthly return volatility and the volatility of their country credit ratings. For all O&G countries included in the study, the negative coefficients of the country credit risk are significant at 1% level. Although country credit risk rating has significantly negative impact on the volatility of the related stock markets return volatility, this impact has the lowest explanatory power among other country political, financial and economic risk rating. Coefficients of each country political, financial, economic

risk and country credit rating, reported in table (4), show that volatility of country credit risk rating has the lowest impact on the country stock market return volatility.

Table-4. The GARCH (1,1) Parameters Estimation with Political, Financial, Economic and Credit Risk Volatility:

Country	Alpha	PR	FR	ER	CCR	R-Squared
	0.278	1.363***	1.208***	-0.452	-0.056***	0.746
Russia	(0.534)	(0.111)	(0.123)	(0.130)	(0.082)	
	0.687**	0.991***	0.870***	-0.104	-0.051***	0.848
Iran	(0.297)	(0.064)	(0.081)	(0.079)	(0.054)	
	0.702***	0.924***	0.820***	0.212***	-0.032***	0.674
UAE	(0.211)	(0.049)	(0.060)	(0.063)	(0.036)	
	0.657***	0.794***	0.712***	0.349***	-0.015***	0.757
Venezuela	(0.195)	(0.050)	(0.061)	(0.055)	(0.043)	
	0.812***	0.941***	0.745***	0.456***	-0.047***	0.798
Algeria	(0.310)	(0.063)	(0.085)	(0.086)	(0.051)	
	0.286	1.047***	0.944***	-0.541	-0.048***	0.883
Nigeria	(0.243)	(0.056)	(0.068)	(0.062)	(0.034)	
	0.520***	0.949***	0.741***	0.192***	-0.028***	0.728
Argentina	(0.209)	(0.046)	(0.054)	(0.083)	(0.029)	
	0.544***	0.879***	0.702***	0.529***	-0.073***	0.804
Malaysia	(0.174)	(0.037)	(0.055)	(0.046)	(0.031)	
	0.322	0.920***	0.709***	0.700***	-0.034***	0.901
Ecuador	(0.160)	(0.040)	(0.051)	(0.042)	(0.030)	
	0.058	1.100***	0.897***	1.110***	-0.043***	0.843
South Africa	(0.176)	(0.036)	(0.046)	(0.045)	(0.027)	

This table presents the estimated coefficients of the Country Risk Model. *, **, and *** are Statistical Significance at 10%, 5%, and 1% levels. Figures in parentheses correspond to the standard errors of the estimated coefficients.

5. Conclusion and Recommendations

In conclusion, the main findings in this study are that ICAPM utilizing global market portfolio play a significant role to explain return in emerging O&G stock market. This finding consistent with the theory that stock returns can be predicted using global market factor. However, this finding is contrary to other studies by Lessard (1973), Harvey (1995), Richards (1996), De Santis and Imrohoroglu (1997), and Rouwenhorst (1999) which have proposed evidence against the ICAPM. Contrary to the common believe that stock returns depend on a single factor as suggested by the single factor CAPM or that international stock returns depend only on the global market portfolio as suggested by the ICAPM, this evidence suggests that country-specific variables including political risk, financial risk, economic risk and country credit ratings. Portfolio managers and investors must therefore take these variables into consideration in addition to the conventional variables that are often used in analysing equity investments when making portfolio investment decisions in O&G emerging markets.

The study also observed that stock return volatility in emerging O&G markets depends on country risk variables. Evidences reviled by this study show that country political, financial and economic risk variables play a significant role in predicting return volatility in emerging O&G stock market. Results show that volatility of emerging O&G stock market return depends significantly on the country risk factors, where the higher the risk factor, the higher the stock returns volatility. Therefore, country risk factors should also be taken into account when measuring volatility of stock returns in emerging O&G countries as these variables have a significant impact on the potential performance of the investment in future. The evidence is also consistent with El-Sady et al. (2003) and Erb et al. (1996a, b). Consequently, when forecasting volatility in emerging markets, investors, investment managers and portfolio managers must take into account these variables in order to obtain accurate forecasts of volatility.

To summarise, the main conclusion in this paper is that the returns of emerging O&G stock markets are determined by both global and country risk factors, which must be taken into account when making international portfolio investment decisions involving emerging O&G countries.

Biography

Dr. Hassan El-Sady, currently is Visiting Associate Professor of Finance, College of Business Administration, Gulf University for Science & Technology, and advisor to the Council of Ministries, Kuwait. Dr. El-Sady was the financial and economic advisor to the board of directors of Saving an Loans Bank and to the Chairman of Kuwait stock Exchange. Kholoud Al-Awadhi is an Instructor of Business and Finance, Public Authority for Applied Sciences, College of Business Studies, Kuwait. Dr. Mansour AlShamali is Professor of Finance, Public Authority for Applied Sciences, College of Business Studies, Department of Finance and Banking, Kuwait

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