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Master of Finance

Sensitivity of Equity Returns to Political Risk Premiums

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June 2008

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Abstract

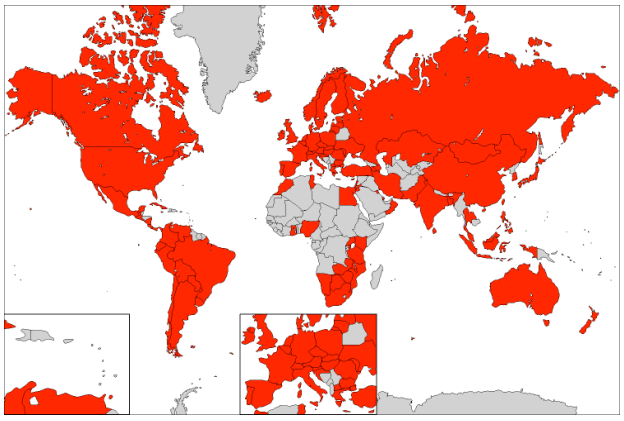
In this paper we study the impact that political risk premiums have on market index returns in thirty-one countries. We also include the impact of exchange rates and inflation rates. Fifteen of the countries are classified as developing, and sixteen of them are classified as developed based on the World Bank classifications. These classifications play a role in the analysis as they are included as a dummy variable in the cross-sectional time-series regressions we run in order to analyze the sensitivities. We use a spread between interest yields on sovereign bonds and a comparable U.S. bond as a proxy for the political risk premium. We find evidence that market index returns are negatively affected by political risk premiums. The results suggest that political instability in countries negatively affects the returns of companies found on the local financial markets. These results suggest that consideration of political risks is an important part of foreign investment decision-making.

1 Introduction

This paper analyzes the significance of political risk on market returns. As global investment becomes less restricted, determining important factors that contribute to market returns is central to investment decision-making. If an investor is well informed about the effects a political climate has on investment returns, an investor will be able to appropriately designate investments among a number of countries with varying political risks in order to diversify a portfolio and maximize returns.

Globalization has changed the number of opportunities for investors immensely. In fact, there are a large number of countries, developing and developed, which have financial markets that allow for private foreign investment. Even a number of low-income countries are able to maintain stock markets. This solidifies the importance and growing interest in financial markets and investment opportunities. Below (Picture 1) is a map of countries that contain stock markets based on the travel website EscapeArtist.com (1998-2008). The countries in grey (red) designate countries with stock markets.

Picture 1: Map of Countries with Stock Markets



But with globalization comes an entirely new set of concerns for investors. Countries around the world are affected by the changes in a variety of macroeconomic variables. These macroeconomic changes greatly affect the risks involved in investing both at home and abroad. Also, the possibility of a crisis spreading within a country or region needs to be taken into account. Therefore, when deciding to invest abroad,

investors must consider the variety of factors, macroeconomic and other, which contribute to a country's risks. For example, the location of a country has to be considered when deciding between investing in two countries' financial markets with similar risk profiles. If one country is located within an unstable region, a crisis in its area could affect it and rapidly increase the risks of an investment in that country.

According to the PRS Group (2008), there are different ways to measure the risk of a particular country, in fact a mixture of financial, economic and political variables are assessed in order to determine the risks involved in investing in foreign markets. We believe that political risks should play a significant role in an investor's expectations for the returns on investments made abroad.

According to DiPiazza and Bremmer's (2006) article on *Integrating Political Risk Into Enterprise Risk Management* written for PriceWaterhouseCoopers (PwC) and Eurasia group, politics are the least predictable causes of economic changes. Therefore, political risk is one of the important risks that investors should assess in order to decide where to invest.

According to PwC Advisory and Eurasia Group (2006), political risk is defined as any political change that alters the expected outcome and value of a given economic action by changing the probability of achieving business objectives.

We believe that political risk should affect market returns because the political climate of a country affects how businesses operate. As the definition states, political changes can affect the performance of a company and thus affect the company's returns in the financial market. During times of political unrest, investors may lose faith in a company's ability to reach their objectives. This changes their expectations of the future performance of the company and drops their estimation of the company's intrinsic value, which lowers returns in the market. This would suggest that political risk negatively affects market returns.

On the other hand, it is possible that investors choose to invest in countries with higher political risk because those risks are compensated for in the form of higher market returns. This is in line with what we originally hypothesized when beginning this study. It also follows general economic theory stating that a higher risk corresponds to a higher return. Most individuals are risk averse and in order to take on increased risk they need to

be compensated with higher returns. This would suggest that the political risks of a country actually have a positive effect on market returns. Accordingly, it is an important relationship to analyze because the relationship between political risk and investment returns is not completely clear without further investigation.

Attempting to find a connection between political risk and investment returns begins with the need for a measure of political risk. There are a number of studies dedicated to finding the best way to quantify political risk. Nathan Jensen and Andrew Sobel's (2005) article, "Using Markets to Measure Political Risk", attempted to develop a proxy measure for political risk by using market indicators. They took this approach in order to avoid the problems that he claims the current ratings of political risk show, such as lack of variation over time and insensitivity to political change. They compared market instruments, such as money market rates and lending rates, with existing political risk measures in order to find the best proxy using the market indicators available.

In their article they discuss one of the most utilized existing measures for political risk from the International Country Risk Guide (ICRG) issued by the PRS Group (2008). The ICRG rating includes 22 variables in three subcategories of risk: political, financial, and economic. They determine an index for each category. The variable the Political Risk Index considers can be found below in Table 1.

Table 1: ICRG's Political Risk Components

Sequence	Component	Points *(max.)*
A	Government Stability	12
B	Socioeconomic Conditions	12
C	Investment Profile	12
D	Internal Conflict	12
E	External Conflict	12
F	Corruption	6
G	Military in Politics	6
H	Religious Tensions	6
I	Law and Order	6
J	Ethnic Tensions	6
K	Democratic Accountability	6
L	Bureaucracy Quality	4
Total		100

Table taken from www.prs.com.

Each of these components has subcomponents that make the evaluation complicated and subjective. Contrary to existing evaluation tools like ICRG's, market indicators are time varying and easily observable and obtained. Initially, Jensen and Sobel used money market and lending rates as proxies for political risk, but they intended to extend their study in the future by using government bond markets, interest rate changes, and currency movements. Their initial attempt to replicate an existing political risk measurement using market instruments was focused on five Latin American countries. The results of Jensen and Sobel's study were inconclusive because the direction of effect of each variable changed across each of the five countries, and they were unable to determine the direction of causality between variables.

In addition, Jensen (2005) published: "Measuring Risk: Political Risk Insurance Premiums and Domestic Political Institutions". Recently, there has been an increasing tendency to use political risk insurance in order to avoid risks coming from expropriations, violence, and government restrictions. By paying a political risk insurance premium, multinational companies can enter into emerging markets without being completely exposed to political risk. Jensen claims that political risk insurance premiums are direct measures of political risk; they also have the advantage of being determined by the forces of supply and demand. Consequently, they provide a proper forecast of the long-term risk environment in these countries. He found that restrictions on politicians lead to slightly lower expropriation and transfer risks. Whereas Democracy significantly reduces expropriation risk but has no effect on transfer risk.

Warren Bailey and Y. Peter Chung (1995) also authored the paper, "Exchange Rate Fluctuations, Political Risk, and Stock Returns: Some Evidence from an Emerging Market". This study analyses the effect of exchange rate movements and political risk on the risk premiums of stock prices of individual companies in Mexico. They used this country because it has shown important monetary and political instability. In order to measure exchange rate and political risk, they used indicators from currency rate and sovereign debt markets as proxies. The authors argue that if the effects of exchange rate and political risk do not disappear in diversified portfolios the exposure to these variables will generate risk premiums in asset markets in equilibrium.

In his book "Financial Markets in Transition: Globalization, Investment and Economic Growth", Lars Oxelheim (1996) highlights the importance of political risk to evolving financial markets. He also addresses the close relationship that exists between exchange risk and political risk. For example, a change in the exchange regime affects both types of risk. Oxelheim states that because managers are risk averse and require compensation for taking on political risks by investing in foreign markets, there must, in turn, be a higher expected return: the political risk premium. He also argues that in Europe, because of the fixed exchange regime, it is possible that political risk premiums increase temporarily as a result of the elimination of the exchange risk because we can expect a covariation between political and exchange rate risks.

According to Lars Oxelheim, political risk premiums are a compensation that can be estimated as the difference between the domestic rates and the Eurorate, in the case of Nordic countries, with both rates having similar characteristics. In specific, he refers to government bond rates because its role as the risk free benchmark rate.

The studies above show that there are a variety of different proxies and methods for calculating political risk. We decide to follow the proxy suggested by Lars Oxelheim. Some of the articles also address the different effects political risk can have; however, we could not find any study relating market index returns to political risk premiums, in our case measured as the interest yield spread from sovereign bonds. Therefore, we believe that this research will contribute to further analyse the effects of political risk on financial markets.

In order to analyze the relationship between political risk and market index returns, we run three different regressions aiming to find the sensitivity of market index returns to a change in political risk premiums. We begin with a relatively simple regression. Using the simplest model as a starting point, we complicate the model in order to obtain a model that can best represent the relationship between the two. In the next chapter, we explain in detail the variables used, each model, and the source of data used to represent each variable.

2 Empirical Procedure

2.1 Methodology

We assume that the market index returns, our dependent variable, are affected by three main variables: exchange rate change, inflation rate change, and interest yield spread change. We also consider the impact that a country's classification, developing or developed, has on market returns by including a dummy variable. The dummy variable equals one if a country is developing and zero if it is developed.

We chose exchange rate and inflation rate variables because we believe them to be the most prominent macroeconomic factors that would affect market index returns. Lars Oxelheim and Clas Wihlborg (2005) argue in their book "Corporate Performance and the Exposure to Macroeconomic Fluctuations" that the macroeconomic environment is complex and has important effects on companies' performance. These effects can be captured by analyzing exchange rates, interest rates, inflation, relative prices and political risks (that can alter the rules of the game). Patro, Wald, and Wu (2002) in their article "The Impact of Macroeconomic and Financial Variables on Market Risk: Evidence from International Equity Returns," suggests that there are other variables that may have an impact on market index returns such as imports, exports, money supply, GDP (gross domestic product), dividend yield, etc. We feel it is sufficient to include only inflation and exchange rate as our major macroeconomic variables because other macroeconomic factors would most likely be highly correlated to these.

Our interest yield spread change is the focus of our paper and represents our proxy for a political risk premium, as suggested by Lars Oxelheim and mentioned earlier. The purpose of the models is to highlight the significance and sensitivities that the interest yield spread, the political risk premium, have on market returns.

2.1.1 Pooled Regression Model

We begin the analysis by running a fairly simple time-series cross-sectional pooled linear regression model,

$$R_{it} = \alpha + \beta_1 \Delta Ex_{it} + \beta_2 \Delta Inf_{it} + \beta_3 \Delta Spread_{it} + \beta_4 Dummy_{it} + \mathrm{B}_5 (Dummy \times \Delta Spread_{it}) + \varepsilon_{it}$$

where R_{it} is the market return for country *i* at time *t*, ΔInf_{it} is the change in the inflation rate for country *i* at time *t*, $\Delta Spread_{it}$ is the change in the interest yield spread for country *i* at time *t*, $Dummy_{it}$ is the dummy variable (=1 when developing, =0 when developed) for country *i* at time *t*, $Dummy*\Delta Spread_{it}$ is the dummy variable times the change in interest yield spread for country *i* at time *t*, ε_{it} is the residual for country *i* at time *t*, and β is the sensitivity of each variable.

This model is called a pooled regression model because each country contains a set of its own time series data. Then we run an ordinary least squares regression model on the pooled data. This model can also be called a constant coefficient model, and, as the name suggests, the coefficients of each variable and the intercept have constant coefficients for each country. This model can only be used if there are no significant country effects, which we will test for later.

We include a dummy variable in order to distinguish if the countries are developing (=1) or developed (=0). We also include a variable for the dummy times the spread. This variable will pull out the effect that being a developing country has on the spread, in turn allowing the coefficient of the spread variable to represent more accurately the coefficient for the political risk premium.

2.1.2 Fixed Effects Model

In order to further analyze the relationship between the political risk premium and the returns in each market, we ran a slightly more complicated fixed effects model. By subtracting the following element,

$$\overline{R}_i = \alpha + \beta_1 \overline{\Delta Ex}_i + \beta_2 \overline{\Delta Inf}_i + \beta_3 \overline{\Delta Spread}_i$$

from the original model, excluding the dummy variables, we retrieve the fixed effects model:

$$R_{it} - \overline{R}_i = \beta_1(\Delta Ex_{it} - \overline{\Delta Ex}_i) + \beta_2(\Delta Inf_{it} - \overline{\Delta Inf}_i) + \beta_3(\Delta Spread_{it} - \overline{\Delta Spread}_i) + \varepsilon_{it}$$

According to Data and Statistical Services (DSS) (2007), the Social Science Reference Center in Firestone Library at Princeton University, a fixed effects regression can be used to control for omitted variables that differ between cases (in our case countries) but are constant over time. The changes in the variables over time can be used to estimate the effects of the independent variables on the dependent variable, and is the frequently used technique for panel data analysis.

As explained in Veerbeek's (2004) book, *A Guide to Modern Econometrics,* this is essentially creating the regression based on deviations from individual means, this transformation is called a within transformation. This model eliminates country specific effects by subtracting the mean of each country's time-series data from each data point within the time-series. Note that this model does not include an intercept term because it is subtracted away.

DSS also explains that this is equivalent to creating a dummy variable for each country and including it in a standard linear regression in order to control for these fixed country effects. It would be most accurate when there are relatively fewer countries and more time periods because each dummy variable removes one degree of freedom from the model.

2.1.3 Orthogonalized Linear Model

We believe that there is probably a correlation between the exchange rate changes and the inflation rate changes. Based on this assumption, we decided to orthogonalize the exchange rate data by pulling out the effects of inflation. In order to orthogonalize the exchange rate, we ran the following model:

$$\Delta Ex_{it} = \alpha + \beta_1 \Delta Inf_{it} + \varepsilon_{it}$$

We then replaced the original exchange rate change data with the new orthogonalized exchange rate change data, which follows the form:

$$\Delta Ex_{it}^{orth} = \alpha + \varepsilon_{it}$$

This new variable's coefficient should give us the sensitivity of just a change in exchange rate, excluding the effects of inflation. It also will ensure that the inflation rate variable's effects are not distorted because of their inclusion in the exchange rate variable.

Theoretically it would be logical to assume that the interest yield spread is made up of more components than just the political risk premium. In our model, we assume that part of the interest yield spread is impacted by an inflation rate spread. This inflation rate spread is calculated by subtracting the United States inflation rate in a given year from the inflation rates of each country.

Due to our assumption that the interest yield spread is correlated with the inflation spread, we decided to better our political risk measure by orthogonalizing the change in interest yield spread by pulling out the effects of the change in inflation rate spread. In order to do this we ran the following model:

$$\Delta Spread_{it} = \alpha + \beta \Delta InfSpread_{it} + \varepsilon_{it}$$

Then we replace the original spread change variable with the orthogonalized spread change variable, which follows the form:

$$\Delta Spread_{it}^{orth} = \alpha + \varepsilon_{it}$$

This variable should better represent the political risk premium, and the new model should provide a more accurate result for the sensitivity of the political risk premium on the market returns. The revised model becomes:

$$R_{it} = \alpha + \beta_1 \Delta Ex_{it}^{orth} + \beta_2 \Delta Inf_{it} + \beta_3 \Delta Spread_{it}^{orth} + \beta_4 Dummy_{it} + \mathrm{B}_5 (Dummy_{it} \times \Delta Spread_{it}^{orth}) + \varepsilon_{it}$$

2.2 Data

2.2.1 Country Selection

In order to determine the countries included in our research, we found it necessary to evaluate countries that received large amounts of foreign direct investment (FDI) and are relevant players in the fight for foreign investment. In order to analyze the connection between investments made in a variety of countries and the returns on equity in those countries, it is important to consider countries that are receiving large amounts of foreign direct investment. We use FDI levels as a proxy for private investment levels because we assume countries that are appealing to corporate investors and parent enterprises must have appealing returns for private investors as well. This way we can attempt to explain investments made in these countries based on their predicted market returns on equity as they are affected by political risk premiums.

In order to determine which countries to include based on the level of FDI, we used the United Nations Conference on Trade and Development (UNCTAD) (2007) Index for Inward FDI Performance from 2004-2006. The index ranks countries based on the FDI they receive relative to their economic size. UNCTAD uses the following methodology to calculate the index values:

Inward FDI Performance Methodology

$$IND_i = \frac{FDI_i / FDI_w}{GDP_i / GDP_w}$$

where IND_i is the Inward FDI Performance Index of the i^{th} country, FDI_i is the FDI inflows in the i^{th} country, FDI_w is the world FDI inflows, GDP_i is the GDP in the i^{th} country, and GDP_w is the world GDP.

The index value is a ratio of the country's share in global FDI inflows over the countries share in global Gross Domestic Product (GDP). Values greater than one indicate that the country receives more FDI than its relative economic size. This index captures the influence on FDI of factors other than market size. According to the UNCTAD website, these factors can range from business climate, economic and political stability, presence of natural resources, infrastructure, skill and technologies, and so on.

Based on the above factors, this is an appropriate index to base our country selection on because it ranks countries investment attractiveness on factors other than size, including the political climate, which is the focus of our research.

From there it was necessary to determine which countries had data available for research. We began by investigating with DataStream which countries had stock markets and then which of those countries had enough data available to us for each variable. The numbers of years we chose to include was based solely on the available data. We tried to include as many years as possible, but we limited the number of years based on our attempt to include as many of the top ranked countries as possible. We ended up with data for 2002 to 2007 and data points for 2003-2007 because of the nature of our variables being changes.

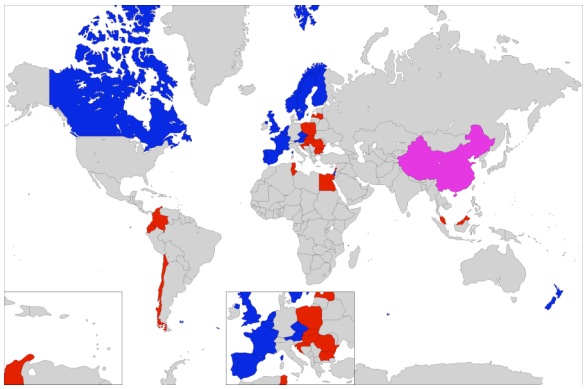
From the rankings given by the UNCTAD Index, we filtered the countries by determining which were developing countries. In order to do this we used the World Bank's Country Classification. The World Bank (2008) considers countries with low-income to middle-income as developing countries. The World Bank classifications are based on the following income groups according to 2006 gross national income per capita: low income, $905 or less; lower middle income, $906-$3,595; upper middle income, $3,596-$11,115; and high income, $11,116 or more. For our dummy variable, developing countries take on a value of 1 for the dummy variable. We ended up selecting fifteen developing countries and sixteen developed countries.

The list of the countries included in the analysis and their ranking on the UNCTAD Inward FDI Performance as well as their classification based on the World Bank can be found below in Table 2. A map (Picture 2) of the countries included can also be found below. The countries in black (blue) are developed and the countries in grey (red) are developing. China is shown as grey (purple) because Hong Kong is developed but China is developing. From this map, we can see that the selection of countries is relatively well spread out and inclusive of most regions of the world.

Table 2: Country Classifications and Inward FDI Ranking

FDI Performance Rank	World Bank Classification	Country	Developing/Developed	FDI Rank	Classification	Country	Developing/Developed
2	High income: nonOECD	**Hong Kong China**	Developed	42	High income: nonOECD	**Israel**	Developed
5	High income: nonOECD	**Singapore**	Developed	50	Lower middle income	**Ecuador**	Developing
7	Upper middle income	**Bulgaria**	Developing	53	High income: OECD	**Sweden**	Developed
11	High income: OECD	**Belgium**	Developed	57	Upper middle income	**Poland**	Developing
14	Upper middle income	**Lebanon**	Developing	58	High income: OECD	**New Zealand**	Developed
21	Upper middle income	**Romania**	Developing	62	Upper middle income	**Malaysia**	Developing
27	Upper middle income	**Slovakia**	Developing	69	Lower middle income	**China**	Developing
30	Upper middle income	**Chile**	Developing	74	High income: OECD	**France**	Developed
31	Upper middle income	**Latvia**	Developing	74	High income: OECD	**Finland**	Developed
32	High income: OECD	**Czech Republic**	Developed	79	High income: OECD	**Canada**	Developed
33	Lower middle income	**Egypt**	Developing	85	High income: OECD	**Netherlands**	Developed
34	High income: OECD	**UK**	Developed	86	High income: OECD	**Portugal**	Developed
36	Lower middle income	**Croatia**	Developing	94	High income: OECD	**Spain**	Developed
38	Upper middle income	**Hungary**	Developing	100	High income: OECD	**Norway**	Developed
40	Lower middle income	**Colombia**	Developing	105	High income: OECD	**Austria**	Developed
41	Lower middle income	**Tunisia**	Developing				

Picture 2: Country Classification Map



2.2.2 Political Risk Premium – Interest Yield Spread

The variable we use to represent the political risk premium is the yearly spread change between each country's long-term sovereign bond and a similar U.S. government bond. We use this as our proxy for political risk premium because it is an observable and time varying measure. We also chose this measure, as mentioned earlier, based on the work of Lars Oxelheim.

Because the data for each country's bond market can vary from the U.S. bond market, some bonds could not be matched perfectly with a U.S. bond. Below, Table 3, shows the information we obtained from DataStream on the bonds we used in the analysis including their issue year, maturity year, and the U.S. bond issue year to maturity year the spread was based on.

Table 3: Bond Issue/Maturity Comparison

Country	Issue	Maturity	U.S. Bond	Country	Issue	Maturity	U.S. Bond
Bulgaria	2002	2013	2001-2011	**Singapore**	2000	2010	2001-2011
Lebanon	1999	2009	1999-2009	**Belgium**	2001	2011	2001-2011
Romania	2001	2008	2001-2011	**Czech Republic**	2000	2010	2001-2011
Slovakia	2000	2010	2001-2011	**UK**	2001	2012	2001-2011
Chile	1999	2009	1999-2009	**Israel**	2000	2010	2001-2011
Latvia	2001	2008	2001-2011	**Sweden**	2000	2011	2001-2011
Egypt	2001	2011	2001-2011	**New Zealand**	2001	2013	2001-2011
Croatia	2001	2011	2001-2011	**France**	2000	2010	2001-2011
Hungary	2001	2011	2001-2011	**Canada**	2000	2011	2001-2011
Colombia	2001	2011	2001-2011	**Portugal**	2000	2010	2001-2011
Tunisia	1999	2009	1999-2009	**Spain**	1998	2008	1999-2009
Ecuador	2000	2012	2001-2011	**Finland**	2000	2011	2001-2011
Poland	2001	2011	2001-2011	**Norway**	2000	2011	2001-2011
Malaysia	2001	2011	2001-2011	**Austria**	1999	2009	1999-2009
China	2001	2011	2001-2011	**Netherlands**	2000	2010	2001-2011
Hong Kong	2001	2011	2001-2011				

In general, we would assume that developing countries are more affected by political risk because of their instable nature. We would also expect that the political risk premiums from these countries should be greater than those of developed countries. A ranking of the fifteen largest political risk premiums, estimated using the interest yield spreads, for both 2006 and 2007 can be found below, a complete ranking of all the countries included in the analysis can be found in Appendix A. From this ranking we can see that in both years 80% of the developing countries, marked in gray in Table 4 below, make up for the fifteen largest interest yield spreads.

Table 4: Interest Yield Rankings

Country	2006 IY Spread	Country	2007 IY Spread
Lebanon	7.7387	Ecuador	7.8351
Ecuador	6.789	Lebanon	7.7269
Austria	6.5509	Austria	7.4429
Romania	4.3298	Romania	4.986
Colombia	3.8299	Colombia	4.0293
Egypt	2.8021	Egypt	2.8125
Israel	2.239	Slovakia	2.5168
Malaysia	1.9301	Israel	2.3291
Slovakia	1.7522	Malaysia	1.9873
China	1.454	Tunisia	1.6156
Tunisia	1.3642	Bulgaria	1.5705
Bulgaria	1.2889	New Zealand	1.5087
New Zealand	1.2577	China	1.4784
Chile	1.2064	Croatia	1.3246
Croatia	1.0656	Chile	1.2397

2.2.3 Exchange Rate

The exchange rate variable is the yearly change in exchange rate between each country's currency and the United States dollar, and the data is collected from DataStream. When available, we used the WMR/Reuters inflation rate data collected through DataStream.

2.2.4 Inflation Rate

The inflation rate data is the yearly change in the inflation rate and comes from World Education Services' and collected through DataStream.

2.2.5 Market Index Returns

In order to obtain market index returns, we used DataStream to obtain the major market indexes for each country. Once we obtained the yearly market index returns, we converted the returns into United States dollars using the exchange rates we found earlier. This way all the returns are in United States dollars and it a more relevant measure for an investor in the United States looking to invest in a foreign market.

2.2.6 Summary Statistics

In Appendix B, a comprehensive table can be found with each country and DataStream's title for the source of data we used for each variable.

Below is a summary statistics table (Table 5) containing information for each data set we used in the models.

Table 5: Data Summary Statistics

Summary Statistics	R_{it}	$\Delta Spread_{it}$	$\Delta Spread(orth)_{it}$	ΔEx_{it}	$\Delta Ex(orth)_{it}$	ΔInf_{it}
Mean	0.14	-0.04	-0.04	-0.05	-0.05	0.17
Median	0.14	0.01	0.00	-0.06	-0.06	0.10
Standard Deviation	0.31	0.53	0.53	0.09	0.09	1.23
Kurtosis	0.67	52.78	52.56	1.68	1.49	0.44
Skewness	-0.27	-4.50	-4.41	0.74	0.72	0.21
Minimum	-0.77	-5.00	-4.96	-0.20	-0.21	-3.50
Maximum	0.90	2.59	2.63	0.30	0.29	4.00

3 Results and Analysis

In this chapter we will discuss the basic relationship between variables, the results of the regression we ran, as well as analyze the findings.

Below is a table (Table 6) of the results obtained from Excel of the three models we ran. The complete outputs for each model can be found in Appendix C, D, and E.

Table 6: Model Results

Linear Regression Model	**Intercept**	**$\Delta Spread_{it}$**	**ΔEx_{it}**	**ΔInf_{it}**	**$Dummy_{it}$**	**$Dummy*Spread_{it}$**
Coefficient	0.16	-0.20	1.62	0.01	0.13	0.19
Standard Deviation	0.03	0.13	0.26	0.02	0.04	0.14
P-Value	0.00	0.13	0.00	0.71	0.00	0.17
R Square: .29						

Fixed Effects Model	**Intercept**	**$\Delta Spread_{it}$**	**ΔEx_{it}**	**ΔInf_{it}**
Coefficient	0.00	-0.02	1.68	0.01
Standard Deviation	#N/A	0.04	0.26	0.02
P-Value	#N/A	0.63	0.00	0.54
R Square: 0.23				

Orthogonalized Model	**Intercept**	**$\Delta Spread(orth)_{it}$**	**$\Delta Ex(orth)_{it}$**	**ΔInf_{it}**	**$Dummy_{it}$**	**$Dummy*Spread(orth)_{it}$**
Coefficient	0.16	-0.23	1.62	0.02	0.13	0.23
Standard Deviation	0.03	0.14	0.26	0.02	0.04	0.15
P-Value	0.00	0.10	0.00	0.29	0.00	0.12
R Square: .29						

3.1 Correlation Analysis

In the correlation matrix below, we can see the basic relationship between the variables included in the analysis based on classification of country. These correlations are calculated using each country's average value of the variable over the five years and can be found below in Table 7.

Table 7: Variable Correlation Matrix by Country Classification

Developing Countries	R_{it}	ΔEx_{it}	ΔInf_{it}	$\Delta Spread_{it}$	$\Delta Spread(orth)_{it}$	$\Delta Ex(orth)_{it}$
R_{it}	1.00					
ΔEx_{it}	0.41	1.00				
ΔInf_{it}	-0.16	0.04	1.00			
$\Delta Spread_{it}$	-0.37	-0.14	0.26	1.00		
$\Delta Spread(orth)_{it}$	-0.36	-0.15	0.10	0.99	1.00	
$\Delta Ex(orth)_{it}$	0.43	0.99	-0.08	-0.17	-0.17	1.00

Developed Countries	R_{it}	ΔEx_{it}	ΔInf_{it}	$\Delta Spread_{it}$	$\Delta Spread(orth)_{it}$	$\Delta Ex(orth)_{it}$
R_{it}	1.00					
ΔEx_{it}	0.40	1.00				
ΔInf_{it}	0.11	0.14	1.00			
$\Delta Spread_{it}$	-0.26	0.21	-0.11	1.00		
$\Delta Spread(orth)_{it}$	-0.27	0.17	-0.32	0.98	1.00	
$\Delta Ex(orth)_{it}$	0.39	0.99	0.02	0.23	0.21	1.00

Here we can see that the average market index returns are highly correlated with both the average exchange rate change variable as well as the orthogonalized exchange rate change variable. Returns are slightly less correlated with the spread change variable than the exchange change variable.

Another observation to note is that some of the variables have opposite correlations depending on whether the countries are developing or developed. This shows how differently the macroeconomic climate can affect two countries of different classification. For example, we can see that the correlation between the spread change variable and the returns in the developed countries is lower than in the developing countries. This can be explained by the fact that developed countries are more stable and therefore the market returns are less affected by the political risk. Investors can be more confident that if political changes occur, the economic and governmental systems are prepared to handle them efficiently and returns will not be affected in the long term.

Reasonably, we see an extremely high correlation between each variable and its orthogonalized variable. This can be explained by the minimal correlation between the variables we orthogonalized.

3.2 Pooled Regression Model

The results from the pooled regression were surprising at first considering that our hypothesis was that the political risk premiums should have a positive effect on market index returns. We based our hypothesis on the assumption that an increase in political risk should manifest itself as an increased return to investors in order to compensate for investing in a riskier country. In fact, we see that the change in interest yield spread actually has a negative effect on market returns, which is actually true for all three models. Although our original hypothesis on the sensitivity of market returns is evidently false, the relationship that reveals itself can be logically explained and is equally as important.

Instead of the markets compensating investors for the risks they take on, it is likely that the financial markets with higher political risks face a variety of complications because of their political climate. Countries with increasing political risk may be subject to corruption, government run businesses, and markets which are poorly functioning, highly restricted, and/or instable. All of these factors can negatively affect business operations as well as corporate returns in the financial markets. In addition to being supported by the models, this is a reasonable relationship between the two variables.

In the pooled regression, the spread is significant only at the 85% confidence level. This is determined by the p-value, which in this case is less than .15 (one minus the confidence level of .85). The p-value represents the exact significance of the coefficient. At a 95% confidence level, we would reject the hypothesis that the market returns are significantly sensitive to the risk premium, the interest yield spread. As a sample size increases, the confidence level must also increase. Ideally we would like to use a confidence level of 95% in order to support the significance of the variables, but in the case of our analysis we find it acceptable to use the significance level of 85% because we have data for only 31 countries, resulting in 155 observations. Considering the nature of the data and its variation over countries, we believe this is reasonable.

At a 95% level of confidence, the intercept, exchange rate change, and the developing/developed dummy variables are significant. At neither the 95% level nor the 85% level are the inflation rate variable or the dummy variable times the spread, which eliminates the effect being a developed or undeveloped country has on the spread, significant. We address the insignificance of the inflation rate variable in the orthogonalized linear model.

We can see that in this model, as well as the other two, the exchange rate is the most significant variable. This could be a result of the high relationship that exists between political and exchange rate risks and the fact that both risks are affected by changes in political decisions. As Lars Oxelheim mentions in his book, a part of the spread could be a result of the exchange rate risk. According to his work, it is very difficult to separate the part of the spread resulting from exchange rate risk. In addition, Warren Bailey and Y. Peter Chung (1995) argue that if exchange rates are very volatile and cannot be hedged without cost, firms are affected by movements in the real value of the domestic currency; therefore, their share prices (market returns) may reflect an ex ante premium for exchange rate risk. They mention that there exists some evidence that exchange rate fluctuations are a priced factor in cross-sections of national stock index returns converted into a common currency. These theories help to explain the strong sensitivity of stock returns to exchange rate changes.

We can see that the R^2 for the model is low, at only 29%. The full results of this model, including the R^2 value, can be found in Appendix C. The R^2 value describes the

percent of variance in market returns that is explained by the model. We can assume that the R^2 is low based on our relatively simple and small number of explanatory variables and the nature of our data. In a more complex analysis it would be beneficial to include a number of variables, not necessarily macroeconomic, which could contribute to market returns.

In an attempt to better our model and improve our analysis, we continue onto the second model.

3.3 Fixed Effects Model

As mentioned above, we ran a fixed effects model in order to pull out country specific effects. The outcome from the fixed effects model shows that the only significant variable, at both the 95% and 85% confidence level, is the exchange rate.

The R^2 for this model is, 23%, which is lower than that of the previous model.

We believe that this model is relatively insignificant, and we do not believe that it provides much insight to our topic. By eliminating the country effects it seems as though we remove the importance of most of the variables. In retrospect, the decision to eliminate country effects may go against the intention of our analysis to investigate the effect of each country's own political risk premium on their market index returns.

In an attempt to find a model that holds more value, we continue to the third model.

3.4 Orthogonalized Linear Model

As we mentioned in the analysis of the first model, we believe that the high level of significance of the exchange rate change variable and the insignificance of the inflation rate change variable could be due to the correlation of the two variables. The actual correlation of the exchange rate variable and the inflation rate variable is .13.

Though the correlation of the two variables is not as high as we expected, we decided to adjust for the correlation anyhow. In order to fix the model for this issue we pulled out the effects of inflation from the exchange rate by orthogonalizing as explained earlier.

We also assumed that the interest yield spread was made up of more than just the political risk premium. The variable we believe to have the most significant effect on the

spread is the inflation rate spread. We believe that a change in the inflation rate spread plays a role in the change of the interest yield spread. The correlation between the interest yield spread and the inflation rate spread is .10.

Again we note that the correlation is not that large, but we still decided it was appropriate to take measure to adjust the model. By orthogonalizing the interest yield spread variable, we hoped to obtain a more accurate proxy of the political risk premium.

After pulling out the inflation effect from the exchange rate and the inflation spread effect from the interest yield spread as well as calculating the new dummy times the spread variable, we ran a third model.

The results of this model do not differ greatly from the original model; this is probably because the correlations between the variables we used to orthogonalize were actually quite small. We do see that both the inflation rate change variable and the new orthogonalized spread change variable have lower p-values. For the inflation rate change variable, this suggests that in fact the exchange rate variable was taking on the effects of the inflation rate change in the original model. We still see that at and 85% confidence level the inflation rate does not have a significant effect on market index returns.

The most important difference in this model is the increased significance of political risk premium proxy. We can now say with 90% confidence that his variable is significant. It still holds a negative sign, which following the reasoning from the first model is logical and important.

The R^2 for this model is the same as the original at 29% (.1% higher). We believe that the slight adjustments to the model simply make the proxy for the political risk premium more accurate, and find it to be the most educational in regards to our analysis.

5 Conclusion

In today's financial world, investors have numerous and increasing opportunities for investment at home and abroad. With these opportunities comes an increasing pressure for each investor to be educated about the many factors that affect their investments' returns. Political risk is an important factor for each investor to consider,

especially when they believe their investments may be significantly affected by the political climate of the country whose financial market they choose to invest in.

There are numerous ways to evaluate the political risks of a country, some more objective than others. For investors with strong beliefs in macroeconomic factors and their influence on financial markets, it is possible to create a proxy for political risk by analyzing the spread between each countries sovereign bond interest yields and the investor's own country's bond yields.

Based on our study of 31 countries, we find that the political risk premium has a negative effect on market index returns. While some investor's may believe higher political risks should guarantee them compensation for these risks in the form of higher market returns, our analysis suggests that this is not the case.

Instead it is likely that countries with increasing political risk or high political risk premiums may be subject to a political climate that negatively affects the returns in the financial markets. Developing countries, which usually have the highest risk premiums, tend to be evolving fast and often have a quickly changing environment (legal and economic framework for example). These countries markets' may be more sensitive to the changes taking place than any other more advanced country's market. In addition, corruption, government controlled businesses, and markets that are poorly functioning, highly restricted, and/or instable can all be characteristics of a country inundated with political risk. All of these factors can negatively affect business operations as well as corporate returns in the financial markets.

For an investor, it is important to be aware of the negative effects that political risk can have on their returns. It is one of the many important factors, which should be considered when deciding to take advantage of global investment opportunities in foreign countries.

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Appendixes

Appendix A: Interest Yield (IY) Spread Ranking

The table below displays the rankings of the interest yield spreads from 2006 and 2007 for each country included in the analysis. The countries highlighted in grey are developing countries.

Country	2006 IY Spread	Country	2007 IY Spread
Lebanon	7.7387	Ecuador	7.8351
Ecuador	6.789	Lebanon	7.7269
Austria	6.5509	Austria	7.4429
Romania	4.3298	Romania	4.986
Colombia	3.8299	Colombia	4.0293
Egypt	2.8021	Egypt	2.8125
Israel	2.239	Slovakia	2.5168
Malaysia	1.9301	Israel	2.3291
Slovakia	1.7522	Malaysia	1.9873
China	1.454	Tunisia	1.6156
Tunisia	1.3642	Bulgaria	1.5705
Bulgaria	1.2889	New Zealand	1.5087
New Zealand	1.2577	China	1.4784
Chile	1.2064	Croatia	1.3246
Croatia	1.0656	Chile	1.2397
Hong Kong			
China	0.7719	Czech Republic	0.9442
Czech Republic	0.7524	Hong Kong	0.8167
Canada	0.5994	Norway	0.7976
Norway	0.5038	Canada	0.6671
Portugal	0.4273	Portugal	0.641
Spain	0.3882	Finland	0.5029
Finland	0.285	Hungary	0.4377
Hungary	0.2574	Spain	0.4065
Latvia	0.1639	France	0.3593
Poland	0.1622	Latvia	0.3514
France	0.1574	Netherlands	0.3479
Netherlands	0.1453	Poland	0.3376
Sweden	-0.108	UK	0.1197
UK	-0.1103	Sweden	0.0942
Belgium	-0.2745	Belgium	-0.1046
Singapore	-0.5718	Singapore	-0.5825
Developing			

Appendix B: Country Data Information and Source

The comprehensive table below shows the source of data for each variable used in the analysis. The titles for each data source come directly from DataStream.

COUNTRY	INDEX	EXCHANGE RATE
Bulgaria	BSE SOFIX - PRICE INDEX	BULGARIAN LEV TO US $ - EXCHANGE RATE
Lebanon	LEBANON BLOM - PRICE INDEX	LEBANESE £ TO US $ (WMR) - EXCHANGE RATE
Romania	ROMANIA BET (L) - PRICE INDEX	NEW ROMANIAN LEU TO U.S. $ - EXCHANGE RATE
Slovakia	SLOVAKIA SAX 16 - PRICE INDEX	SLOVAK KORUNA TO US $ (SX) - EXCHANGE RATE
Chile	CHILE SELECTIVE (IPSA) - PRICE INDEX	CHILEAN PESO TO US $ (WMR) - EXCHANGE RATE
Latvia	OMX RIGA (OMXR) - TOT RETURN IND	LATVIAN LAT TO US $ (LV) - EXCHANGE RATE
Egypt	FTSE W EGYPT - PRICE INDEX	EGYPTIAN £ TO US $ (WMR) - EXCHANGE RATE
Croatia	CROATIA CROBEX - PRICE INDEX	CROATIAN KUNA TO US $ - EXCHANGE RATE
Hungary	BUDAPEST (BUX) - PRICE INDEX	HUNGARIAN FORINT TO US $ (NBH) - EXCHANGE RATE
Colombia	COLOMBIA IGBC INDEX - PRICE INDEX	COLOMBIAN PESO TO US $ (CB) - EXCHANGERATE
Tunisia	TUNISIA TUNINDEX - PRICE INDEX	TUNISIAN DINAR TO US $ (T4) - EXCHANGERATE
Ecuador	ECUADOR ECU (U$) - PRICE INDEX	ECUADOR SUCRE TO US $ (WMR) - EXCHANGERATE
Poland	WARSAW GENERAL INDEX - PRICE INDEX	POLISH ZLOTY TO US $ (GTIS) - EXCHANGERATE
Malaysia	KLCI COMPOSITE - PRICE INDEX	MALAYSIAN RINGGIT TO US $ (WMR) - EXCHANGE RATE
China	SHANGHAI SE A SHARE - PRICE INDEX	CHINESE YUAN TO US $ (WMR) - EXCHANGE RATE
Hong Kong	HANG SENG - PRICE INDEX	HONG KONG $ TO US $ (HK) - EXCHANGE RATE
Singapore	DJTM SINGAPORE - PRICE INDEX	SINGAPORE $ TO US $ (SG) - EXCHANGE RATE
Belgium	BEL 20 - PRICE INDEX	BELGIAN FRANC TO US $ (WMR) - EXCHANGERATE
Czech Republic	PRAGUE SE PX - PRICE INDEX	CZECH KORUNA TO US $ (CZ) - EXCHANGE RATE
UK	DJTM UNITED KINGDOM - PRICE INDEX	UK £ TO US $ (WMR) - EXCHANGE RATE
Israel	ISRAEL TA 100 - PRICE INDEX	ISRAELI SHEKEL TO US $ (WMR) - EXCHANGE RATE
Sweden	OMX STOCKHOLM 30 (OMXS30) - PRICE INDEX	SWEDISH KRONA TO US $ - EXCHANGE RATE
New Zealand	NZX 50 - PRICE INDEX	NEW ZEALAND $ TO US $ - EXCHANGE RATE
France	DJTM FRANCE - PRICE INDEX	FRENCH FRANC TO US $ (WMR) - EXCHANGE RATE
Canada	S&P/TSX COMPOSITE INDEX - PRICE INDEX	CANADIAN $ TO US $ (WMR) - EXCHANGE RATE
Portugal	PORTUGAL PSI GENERAL - PRICE INDEX	PORTUGUESE ESCUDO TO US $ (WMR) - EXCHANGE RATE
Spain	MADRID SE GENERAL - PRICE INDEX	SPANISH PESETA TO US $ (WMR) - EXCHANGE RATE
Finland	OMX HELSINKI (OMXH) - PRICE INDEX	FINNISH MARKKA TO US $ (WMR) - EXCHANGE RATE
Norway	OSLO SE OBX - PRICE INDEX	NORWEGIAN KRONE TO US $ - EXCHANGE RATE
Austria	WIENER BOERSE INDEX (WBI) - PRICE INDEX	AUSTRIAN SCHIL.TO US $ (WMR) - EXCHANGE RATE
Netherlands	AMSTERDAM SE ALL SHARE - PRICE INDEX	NETH. GUILDER TO US $ (WMR) - EXCHANGERATE

COUNTRY	INFLATION	BOND
Bulgaria	BL WES: INFLATION - BULGARIA NADJ	BULGARIA 2002 7 1/2% 15/01/13 S -INTEREST YIELD
Lebanon	LB WES: INFLATION - LEBANON NADJ	LEBANON 1999 10 1/4% 10/09 144A FUNGE - INTEREST YIELD
Romania	RM WES: INFLATION - ROMANIA NADJ	ROMANIA 2001 10 5/8% 27/06/08 - INTEREST YIELD
Slovakia	SX WES: INFLATION - SLOVAKIA NADJ	REP.OF SLOVAKIA 2000 8 1/2% 17/08/10 - INTEREST YIELD
Chile	CL WES: INFLATION - CHILE NADJ	CHILE 1999 6 7/8% 28/04/09 S - INTEREST YIELD
Latvia	LV WES: INFLATION - LATVIA NADJ	LATVIA 2001 5 3/8% 27/11/08 - INTEREST YIELD
Egypt	EY WES: INFLATION - EGYPT NADJ	EGYPT 2001 8 3/4% 11/07/11 144A - INTEREST YIELD
Croatia	CT WES: INFLATION - CROATIA NADJ	CROATIA 2001 6 3/4% 14/03/11 - INTEREST YIELD
Hungary	HN WES: INFLATION - HUNGARY NADJ	HUNGARY 2001 5 5/8% 27/06/11 - INTEREST YIELD
Colombia	CB WES: INFLATION - COLOMBIA NADJ	COLOMBIA REPUBLIC 2001 9 3/4% 09/04/11 S - INTEREST YIELD
Tunisia	TU WES: INFLATION - TUNISIA NADJ	CENTRAL BK.TUNISIA 1999 7 1/2% 06/08/09 - INTEREST YIELD
Ecuador	ED WES: INFLATION - ECUADOR NADJ	ECUADOR 2000 12% 15/11/12 144A S- INTEREST YIELD
Poland	PO WES: INFLATION - POLAND NADJ	POLAND 2001 5 1/2% 14/02/11 - INTEREST YIELD
Malaysia	MY WES: INFLATION - MALAYSIA NADJ	MALAYSIA 2001 7 1/2% 15/07/11 S - INTEREST YIELD
China	CH WES: INFLATION - CHINA NADJ	CHINA 2001 6.8% 23/05/11 - INTEREST YIELD
Hong Kong	HK WES: INFLATION - HONG KONG NADJ	HK.MONETARY AUTH. 2001 5.92% 05/12/11 S - INTEREST YIELD
Singapore	SP WES: INFLATION - SINGAPORE NADJ	SINGAPORE 2000 4 5/8% 01/07/10 S- INTEREST YIELD

Belgium	BG WES: INFLATION - BELGIUM NADJ	BELGIUM OLO 2001 5% 28/09/11 - INTEREST YIELD
Czech Republic	CZ WES: INFLATION - CZECH REPUBLIC NADJ	CZECH REPUBLIC 2000 6.4% 14/04/10 S.33 - INTEREST YIELD
UK	UK WES: INFLATION - UK NADJ	TREASURY STOCK 5% 07/03/12 - INTEREST YIELD
Israel	IS WES: INFLATION - ISRAEL NADJ	ISRAEL 2000 7 3/4% 15/03/10 S - INTEREST YIELD
Sweden	SD WES: INFLATION - SWEDEN NADJ	SVENSKA 2000 5 1/4% 15/03/11 S1045 - INTEREST YIELD
New Zealand	NZ WES: INFLATION - NEW ZEALAND NADJ	NEW ZEALAND 2001 6 1/2% 15/04/13S - INTEREST YIELD
France	FR WES: INFLATION - FRANCE NADJ	OAT FRANCE 2000 5 1/2% 25/04/10 -INTEREST YIELD
Canada	CN WES: INFLATION - CANADA NADJ	CANADA 2000 6% 01/06/11 S - INTEREST YIELD
Portugal	PT WES: INFLATION - PORTUGAL NADJ	PORTUGAL OT 2000 5.85% 20/05/10 -INTEREST YIELD
Spain	ES WES: INFLATION - SPAIN NADJ	SPAIN 1998 5 7/8% 28/07/08 - INTEREST YIELD
Finland	FN WES: INFLATION - FINLAND NADJ	FINLAND 2000 5 3/4% 23/02/11 - INTEREST YIELD
Norway	NW WES: INFLATION - NORWAY NADJ	NORWAY 2000 6% 16/05/11 NST469 -INTEREST YIELD
Austria	OE WES: INFLATION - AUSTRIA NADJ	AUSTRIA 1999 14 1/4% 28/10/09 - INTEREST YIELD
Netherlands	NL WES: INFLATION - NETHERLANDS NADJ	NEDERLAND 2000 5 1/2% 15/07/10 - INTEREST YIELD

Appendix C: Pooled Regression Output

Below are the results of the pooled regression. The output was achieved by using the Microsoft Excel Data Regression Analysis tool. The p-values and the R^2 can be seen in bold.

SUMMARY OUTPUT Pooled Regression

Regression Statistics	
Multiple R	0.540678445
R Square	**0.292333181**
Adjusted R Square	0.268585972
Standard Error	0.268442138
Observations	155

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	4.435442218	0.887088444	12.31021232	5.3359E-10
Residual	149	10.73711604	0.072061181		
Total	154	15.17255825			

	Coefficients	*Standard Error*	*t Stat*	***P-value***
Intercept	0.162354384	0.03465057	4.685475092	**6.24475E-06**
ΔEx_{it}	1.618236871	0.256788114	6.301837135	**3.14752E-09**
ΔInf_{it}	0.006635235	0.017760488	0.37359528	**0.709236476**
$\Delta Spread_{it}$	-0.204412807	0.132966569	-1.537324827	**0.126334652**
Dummy	0.128089931	0.044159723	2.900605376	**0.004288918**
Dummy*$\Delta Spread_{it}$	0.193321319	0.139645262	1.384374347	**0.168313666**

Appendix D: Fixed Effects Regression Output

Below are the results of the fixed effects regression. The output was achieved by using the Microsoft Excel Data Regression Analysis tool. The p-values and the R^2 can be seen in bold.

SUMMARY OUTPUT Fixed Effects Regression

Regression Statistics	
Multiple R	0.480908076
R Square	**0.231272578**
Adjusted R Square	0.214578796
Standard Error	0.247589825
Observations	155

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	2.803244259	0.934414753	15.24312814	1.02674E-08
Residual	152	9.317709666	0.061300721		
Total	155	12.12095393			

	Coefficients	*Standard Error*	*t Stat*	***P-value***
Intercept	0	#N/A	#N/A	**#N/A**
ΔEx_{it}	1.68468208	0.256776564	6.560887241	**7.92108E-10**
ΔInf_{it}	0.010790707	0.017489568	0.616979626	**0.538171239**
$\Delta Spread_{it}$	-0.018539202	0.03816883	-0.485715755	**0.627868136**

Appendix E: Orthogonalized Linear Regression

Below are the results of the orthogonalized linear regression. The output was achieved by using the Microsoft Excel Data Regression Analysis tool. The p-values and the R^2 can be seen in bold.

SUMMARY OUTPUT Orthogonalized Linear Regression

Regression Statistics	
Multiple R	0.542017955
R Square	**0.293783463**
Adjusted R Square	0.270084922
Standard Error	0.268166926
Observations	155

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	4.457446707	0.891489341	12.3966896	4.61225E-10
Residual	149	10.71511155	0.0719135		
Total	154	15.17255825			

	Coefficients	*Standard Error*	*t Stat*	***P-value***
Intercept	0.163510025	0.034539665	4.733978347	**5.07691E-06**
ΔInf_{it}	0.018812437	0.017750258	1.059840181	**0.290932331**
$\Delta Spread(orth)_{it}$	-0.233244508	0.141288585	-1.650837601	**0.100877971**
$\Delta Ex(orth)_{it}$	1.617769134	0.256542244	6.306053561	**3.08063E-09**
Dummy	0.128012382	0.044076435	2.904327024	**0.004240996**
$Dummy*\Delta Spread(orth)_{it}$	0.227416083	0.147328578	1.543597895	**0.124806992**