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The Benefits of Global Diversification

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Abstract

International diversification reduces total risk to a portfolio by adding uncorrelated assets and brings higher long-term returns. In this study, the research looks to see if any single country index or continent index consistently outperforms a diversified value-weighted global market index. In order to value-weight the global index, the study uses the International Monetary Fund's voting shares of each country and equates each voting share to each country or continent's stake within the value-weighted global market index. To correct for currency exchange, the study uses iShares and other ETFs denoted in the United States Dollar. The value-weighted global market index is based off of compound interest off of one dollar invested in a specific year in which the investment started. With all of these in place, the study creates a fund of funds representing the world economy. The conclusion of this study is that because of the Efficient Market Hypothesis, no one country or continent consistently outperforms the value-weighted global market index based on the risk premium of each country or continent in relation to the value-weighted global market index and subsequent regression analysis.

Introduction

In financial literature, the term "global market" is frequently used to define the current status of the global economy; however, there is no one specific indicator for this "global market." There are many macroeconomic factors (i.e. inflation rate, GDP, etc.) which indicate the current status of the global economy, yet many of these factors are either contradictory or can only be understood by financial experts. To make this process more comprehensible for normal investors, this study works to create an index in which the average investor can understand the basic undertones of the global economy. This paper explains the process in which this fund is created as well as the benefits of global market diversification within investing.

While there are many global market indices already on the market that provide insight into the global economy, many developing nations and continents are underrepresented in these global indices.[1] As most world indices, like the S&P 1200 and the Global Dow, do not account underrepresented areas around the world,[2] this study works to bring a more accurate representation of the world economy.

Literary Review

Co-movement is the tendency of two variables to move in parallel.[3] Forbes and Rigobon performed heteroscedasticity biases tests for contagion based on correlation coefficients. Contagion is "the spread of market changes or disturbances from one regional market to another." It "refer[s] to the diffusion of either economic booms or economic crises throughout a geographic region."[4] Forbes and Rigobon's study concludes that there is no contagion during

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[1] *S&P Dow Jones Indices*, S&P Global 1200, us.spindices.com
[2] Ibid.
[3] *Co-Movement / Co-Variation Definition*, www.lse.co.uk/financeglossary.
[4] *Contagion Definition | Investopedia*, Investopedia, investopedia.com

certain economic crises due to the high level of market co-movement, or interdependence, amongst markets.[5] This paper shows the benefit of international diversification and the effect of contagion when looking at international crises during recessions like the time period between 2007-2009. Kuppuswamy and Villalonga confirm this notion with their research on the benefits of diversification in times of crises. Increased diversification within a corporation has a positive correlation with the companies returns between 2007-2009.[6] This paper broadens Kuppuswamy and Villalonga's study, showing the additional benefits of not only corporate diversification within a portfolio, but also international diversification, specifically during times of economic recession—exemplified between 2007 and 2009.

Expanding on co-movement, Stockman and Tesar published a study where they examine the cross-country co-movement of output and consumption. They discover that "technology shocks as measured by observed total factor productivity [and] must be supplemented by other sources of disturbances to explain certain features of the data."[7] These disturbances are known as taste shocks, and Stockman and Tesar's study proves the difficultly of explaining the "co-movements of the relative price of nontraded to traded goods with the relative consumption of those goods without invoking something like these taste shocks."[8] According to another study done by Hameed et.al., co-movement is also correlated to the amount of similar information that is available from company to company. Companies who have similar fundamentals tend to watch their stocks move in a consistent pattern. With this information, investors can capitalize on which

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[5] *No Contagion, Only Interdependence: Measuring Stock Market Comovements*, Forbes, onlinelibrary.wiley.com
[6] Kuppuswamy, Venkat, *Does Diversification Create Value in the Presence of External Financing Constraints? Evidence from the 2007–2009 Financial Crisis*, dialnet.unirioja.es
[7] *Tastes and Technology in a Two-Country Model of the Business Cycle: Explaining International Comovements*, NBER, http://www.nber.org/papers/w3566
[8] Ibid.

profit-maximizing information intermediaries produce preferential information, which is valuable in pricing stocks.[9] While the research in this paper looks at nations as opposed to specific companies, it shows investors which countries are highly correlated—helping predict which country is more profitable when entering the market at a certain time.

This paper also expands on the work done by Moosa et. al., who examined international diversification of whole markets versus sectors. While Moosa's study looked at seven countries and various sectors throughout the countries, this study looks at indices from 33 different countries and six continents. Mossa argues that "international diversification is more effective when assets from developed markets only are used and when multiasset portfolios are used instead two-asset portfolios."[10] This paper, however, examines the importance of international diversification within both developed and developing nations, consequently showing whether or not there is a benefit in investing in developed or developing nations.

The benefit of international diversification has been known for years; however, most investors typically look domestically when they research assets. According to a study done by French and Poterba, 98% of Japanese, 94% of US, and 82% of British equity portfolios are invested domestically. The study states that most investors believe that domestic equities are several hundred basis points higher than international equities.[11] Within the study done in this paper, the research shows the benefits of increasing diversification with foreign assets.

Another important aspect of this study is based on whether the Efficient Market Hypothesis holds true. The Efficient Market Hypothesis states that prices of securities fully

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[9] Hameed, Allaudeen, *Information, Analysts, and Stock Return Comovement*, Oxford Journals, rfs.oxfordjournals.org

[10] *The Effectiveness of International Diversification: Whole Markets Versus Sectors*, Taylor & Francis, www.tandfonline.com.

[11] French, Kenneth R., *Investor Diversification and International Equity Markets*, www.nber.org

reflect available information about securities.[12] There are three versions of the Efficient Market Hypothesis: the weak form, the semistrong form, and the strong form. These versions vary based on the interpretation of available information.[13]

The weak form hypothesis states that "stock prices already reflect all information that can be derived by examining market trading data such as the history of past prices, trading volume, or short interest."[14] This means that future stock prices are solely based off of past performance. This version implies that trend analysis is unproductive or useless. If a stock varies based off of past historical trends, then investors are able to distinguish these trends, take advantage, and exploit these signals.

The semistrong form hypothesis states that "all publicly available information regarding the prospects of a firm already must be reflected in the stock price."[15] This information includes not only past prices, but also fundamental data about the company's "product line, quality of management, balance sheet composition, patents held, earnings forecasts, and accounting practices."[16] Therefore, if firms make this information accessible to the public, investors expect it to be reflected in the company's stock price.

The final version of the Efficient Market Hypothesis is the strong form hypothesis. This form states that "stock prices reflect all information relevant to the firm, even including information available only to company insiders." Many argue that corporate officers do not have pertinent information long enough before the information goes public to enable them to profit from trading on that information. The strong form hypothesis is similar to insider trading—acting

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[12] Bodie, Zvi, *Essentials of Investments* (New York, NY), 235.
[13] Ibid., 238
[14] Ibid.
[15] Ibid.
[16] Ibid.

off of information that is not publically known. Each part of the Efficient Market Hypothesis builds off the other—all the information in the weak form hypothesis is available for the semistrong form hypothesis and all the information in the semistrong form hypothesis is available in the strong form hypothesis.

Following the Efficient Market Hypothesis, this study does not expect to find any country or continent that consistently outperforms the value-weighted global market index.

Data

This study uses iShares MSCI ETFs. A MSCI, or Morgan Stanley Capital International, index is a measurement of stock in a particular area or region. MSCI indices are used by institutional investors worldwide for investment analysis, performance measurement, asset allocation, hedging, and the creation of a wide range of index derivatives, funds, ETFs and structured products. From market capital weighted regional, country, and sector indices to indices based on investment strategies such as factor investing, MSCI enables the construction and monitoring of portfolios in a cohesive and complete manner, avoiding benchmark misfit and uncompensated risks.[17]

An ETF, or exchange traded fund, is a marketable security that tracks an index, a commodity, bonds, or a basket of assets like an index fund. Unlike mutual funds, an ETF trades like a common stock on a stock exchange. ETFs experience price changes throughout the day as they are bought and sold.[18]

[17] *Index Definitions*, MSCI, www.msci.com/documents.
[18] *IShares ETFs - Product List* | IShares US, BlackRock, www.ishares.com.

iShares is "a large provider of exchange-traded funds, managed by the investment management company BlackRock. iShares, Inc. funds…are listed on major exchanges such as the NYSE Euronext, Chicago Board Options Exchange, Nasdaq and NYSE Arca."[19]

There are several reasons this study uses iShares MSCI ETFs. To begin, the study uses iShares to eliminate currency risk between countries. Since all of iShares are sold on the New York Stock Exchange, each index is set to the United States Dollar. As such, the study eliminates not only currency risk, but also the fluctuations of the exchange rate that could affect stock performance. In addition, the inflation rate and other macroeconomic factors of different countries is nullified with the use of iShares. Additionally, by pulling from funds from only one specific type of ETF (MSCI indices), the study standardizes the fund. Without standardization, it would be difficult for the study to compare different countries. This helps eliminate currency appreciation and depreciation as well as discounting any currency return—solely basing it off of equity return.

The two funds that are not iShares MSCI ETFs are the S&P 500 and iShares Chile Capped ETF (ECH). With all of the iShares MSCI ETFs, there is not enough information to properly account for the United States market. Thus, to get a better understanding of the United States' market, this study includes the S&P 500. The S&P 500 is "an index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe."[20] The iShares Chile Capped ETF is used to increase the fund's exposure in South America and Chile and helps better represent the South American and Chilean

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[19] *IShares Definition | Investopedia*, Investopedia, www.investopedia.com
[20] *Standard & Poor's 500 Index (S&P 500) Definition | Investopedia*, Investopedia, www.investopedia.com

economies. Although it is not an MSCI index, ECH is an iShares fund which helps maintains consistency for this study.

Below is the list of the funds and the funds' tickers the research uses and the respective country or continent in which it originated.

Asia

- iShares MSCI All Country Asia ex Japan ETF (AAXJ)
- iShares MSCI Emerging Markets Asia ETF (EEMA)
- iShares MSCI Asia ex Japan Minimum Volatility ETF (AXJV)

Australia

- iShares MSCI Australia ETF (EWA)
- iShares Currency Hedged MSCI Australia ETF (HAUD)

Austria

- iShares MSCI Austria Capped ETF (IEUS)

Belgium

- iShares MSCI Belgium Capped ETF (EWK)

Brazil

- iShares MSCI Brazil Capped ETF (EWZ)
- iShares MSCI Brazil Small-Cap ETF (EWZS)

Canada

- iShares MSCI Canada ETF (EWC)

Chile

- iShares Chile Capped ETF (ECH)

China

- iShares MSCI China ETF (MCHI)
- iShares MSCI China Small-Cap ETF (IESM)

Colombia

- iShares MSCI Colombia Capped ETF (ICOL)

Denmark

- iShares MSCI Denmark Capped ETF (EDEN)

Europe

- iShares MSCI Eurozone ETF (EZU)
- iShares Core MSCI Europe ETF (IEUR)
- iShares MSCI Europe Financials ETF (EUFN)
- iShares MSCI Europe Minimum Volatility ETF (EUMV)

France

- iShares MSCI France ETF (EWQ)

Germany

- iShares MSCI Germany ETF (EWG)
- iShares Currency Hedged MSCI Germany ETF (HEWG)

Indonesia

- iShares MSCI Indonesia ETF (EIDO)

Ireland

- iShares MSCI Ireland Capped ETF (EIRL)

Israel

- iShares MSCI Israel Capped ETF (EIS)

Italy

- iShares MSCI Italy Capped ETF (EWI)
- iShares Currency Hedged MSCI Italy ETF (HEWI)

Japan

- iShares MSCI Japan ETF (EWJ)
- iShares MSCI Japan Small-Cap ETF (SCJ)
- iShares MSCI Japan Minimum Volatility ETF (JPMV)

Malaysia

- iShares MSCI Malaysia ETF (EWM)

Mexico

- iShares Currency Hedged MSCI Mexico ETF (HEWW)

Netherlands

- iShares MSCI Netherlands ETF (EWN)

North America

- iShares MSCI Emerging Markets Latin America ETF (EEML)

Peru

- iShares MSCI All Peru Capped ETF (EPU)

Philippines

- iShares MSCI Philippines ETF (EPHE)

Poland

- iShares MSCI Poland Capped ETF (EPOL)

Qatar

- iShares MSCI Qatar Capped ETF (QAT)

Russia

- iShares MSCI Russia Capped ETF (ERUS)

Saudi Arabia

- iShares MSCI Saudi Arabia Capped ETF (KSA)

South Africa

- iShares MSCI South Africa ETF (EZA)

South Korea

- iShares MSCI South Korea Capped ETF (EWY)

Spain

- iShares MSCI Spain Capped ETF (EWP)
- iShares Currency Hedged MSCI Spain ETF (HEWP)

Sweden

- iShares MSCI Sweden ETF (EWD)

Switzerland

- iShares MSCI Switzerland Capped ETF (EWL)
- iShares Currency Hedged MSCI Switzerland ETF (HEWL)

Thailand

- iShares MSCI Thailand Capped ETF (THD)

Turkey

- iShares MSCI Turkey ETF (TUR)

United Kingdom

- iShares MSCI United Kingdom ETF (EWU)
- iShares Currency Hedged MSCI United Kingdom ETF (HEWU)

United States of America

- iShares MSCI USA Minimum Volatility ETF (USMV)
- iShares MSCI USA Quality Factor ETF (QUAL)
- iShares MSCI USA Momentum Factor ETF (MTUM)
- iShares MSCI USA Value Factor ETF (VLUE)
- iShares MSCI USA ESG Select ETF (KLD)
- iShares MSCI USA Size Factor ETF (SIZE)
- iShares MSCI USA Equal Weighted ETF (EUSA)
- S&P500 (SNP)

Because funds start date differ depending on inception, this study looks at the daily return of each fund. Every fund within a country is equally weighted to create that respective country's average return. Then, each country is averaged within the continent, weighting every country average and continent index within each continent fund equally.

In order to value weight each country and/or continent within the value-weighted global market index, the study uses the International Monetary Fund's (IMF) voting shares as a way to indicate the amount of influence each country or continent has within the global economy. The IMF is an "organization of 189 countries working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world."[21]

The IMF voting shares is determined by the Board of Governors. The Board of Governors is the highest decision-making body of the IMF, consisting of one governor and one alternate governor for each member country. The governor is appointed by the member country

[21] *About the IMF*, IMF, www.imf.org/external/about.htm.

and is usually the minister of finance or the governor of the central bank. All powers of the IMF are vested in the Board of Governors.[22]

The voting shares for this study are listed below:[23]

Country	Voting Share	Country	Voting Share
Afganistan	0.07%	Liechtenstein	0.00%
Albaina	0.03%	Lithuania	0.08%
Algeria	0.53%	Luxembourg	0.18%
Andorra	0.00%	Macedonia	0.03%
Angola	0.12%	Madagascar	0.05%
Antigua and Barbuda	0.01%	Malawi	0.03%
Argentina	0.89%	Malaysia	0.74%
Armenia	0.04%	Maldives	0.004%
Australia	1.36%	Mali	0.04%
Austria	0.89%	Malta	0.04%
Azerbaijan	0.07%	Marshall Islands	0.001%
Bahamas	0.05%	Mauritania	0.03%
Bahrain	0.06%	Mauritius	0.04%
Bangladesh	0.22%	Mexico	1.52%
Barbados	0.03%	Micronesia	0.002%
Belarus	0.16%	Moldova	0.05%
Belgium	1.93%	Monaco	0.00%
Belize	0.01%	Mongolia	0.02%
Benin	0.03%	Montenegro	0.01%
Bhutan	0.003%	Morocco	0.25%
Bolivia	0.07%	Mozambique	0.05%
Bosnia and Herzegovina	0.07%	Myanmar	0.11%
Botswana	0.04%	Nauru	0.00%
Brazil	1.78%	Namibia	0.06%
Brunei Darussalam	0.09%	Nepal	0.03%
Bulgaria	0.27%	Netherlands	2.17%
Burkina Faso	0.03%	New Zeland	0.38%
Burundi	0.03%	Nicaragua	0.05%
Cabo Verde	0.005%	Niger	0.03%

[22] *IMF Members' Quotas and Voting Power, and IMF Board of Governors*, IMF Members' Quotas and Voting Power, and IMF Board of Governors, www.imf.org.
[23] Ibid.

Cambodia	0.04%	Nigeria	0.74%
Cameroon	0.08%	Norway	0.79%
Canada	2.67%	Oman	0.10%
Central African Republic	0.02%	Pakistan	0.43%
Chad	0.03%	Palau	0.001%
Chile	0.36%	Palestine	0.00%
China	4.00%	Panama	0.09%
Colombia	0.32%	Papua New Guinea	0.06%
Comoros	0.004%	Paraguay	0.04%
Congo, Democratic	0.22%	Peru	0.27%
Congo, Republic	0.04%	Philippines	0.43%
Costa Rica	0.07%	Poland	0.71%
Cote d'Ivoire	0.14%	Portugal	0.43%
Croatia	0.15%	Qatar	0.13%
Cuba	0.00%	Romania	0.43%
Cyprus	0.07%	Russia	2.50%
Czech Republic	0.42%	Rwanda	0.03%
Denmark	0.79%	Samoa	0.005%
Djbouti	0.01%	San Marino	0.01%
Dominica	0.003%	Sao Tome and Principe	0.003%
Dominican Republic	0.09%	Saudi Arabia	2.93%
Ecuador	0.15%	Senegal	0.07%
Egypt	0.40%	Serbia	0.20%
El Salvador	0.07%	Seychelles	0.005%
Equatorial Guinea	0.02%	Sierra Leone	0.04%
Eritrea	0.01%	Singapore	0.59%
Estonia	0.04%	Slovak Republic	0.18%
Ethiopia	0.06%	Slovenia	0.12%
Fiji	0.03%	Solomon Islands	0.004%
Finland	0.53%	Somalia	0.02%
France	4.51%	South Africa	0.78%
Gabon	0.06%	South Sudan, Republic	0.05%
Gambia	0.01%	Spain	1.69%
Georgia	0.06%	Sri Lanka	0.17%
Germany	6.12%	St. Kitts and Nevis	0.004%
Ghana	0.15%	St. Lucia	0.01%
Greece	0.46%	St. Vincent and the Grenadines	0.003%
Grenada	0.005%	Sudan	0.07%
Guatemala	0.09%	Suriname	0.04%

Guinea	0.04%	Swaziland	0.02%
Guinea-Bissau	0.01%	Sweden	1.01%
Guyana	0.04%	Switzerland	1.45%
Haiti	0.03%	Syrian Arab Republic	0.12%
Honduras	0.05%	Taiwan	0.00%
Hungary	0.44%	Tajikistan	0.04%
Iceland	0.05%	Tanzania	0.08%
India	2.44%	Thailand	0.60%
Indonesia	0.87%	Timor-Leste	0.005%
Iran	0.63%	Togo	0.03%
Iraq	0.50%	Tonga	0.003%
Ireland	0.53%	Trinidad and Tobago	0.14%
Israel	0.45%	Tunisia	0.12%
Italy	3.31%	Turkey	0.61%
Jamaica	0.11%	Turkmenistan	0.03%
Japan	6.56%	Tuvalu	0.001%
Jordan	0.07%	Uganda	0.08%
Kazakhstan	0.18%	Ukraine	0.58%
Kenya	0.11%	United Arab Emirates	0.32%
Kiribati	0.002%	United Kingdom	4.51%
Korea, North	0.00%	United States	17.67%
Korea, South	1.41%	Uruguay	0.13%
Kosovo	0.02%	Uzbekistan	0.12%
Kuwait	0.58%	Vanuatu	0.01%
Kyrgyz Republic	0.04%	Vatican City	0.00%
Lao People's Demoratic Republic	0.02%	Venezuela, Republica	1.12%
Latvia	0.06%	Vietnam	0.19%
Lebanon	0.11%	Yemen	0.10%
Lesotho	0.01%	Zambia	0.21%
Liberia	0.05%	Zimbabwe	0.15%
Libya	0.47%		

Given the parameters of this value-weighted global market index, there are not enough funds to represent each country; therefore, the study groups each country into its respective continent. The voting share total of each continent is shown below:

Continent	Voting Share
Africa	5.81%
Asia	28.05%
Oceania	1.86%
Europe	36.30%
North America	22.77%
South America	5.21%

Upon value weighting each continent per IMF voting shares, the value-weighted global market index is created. In addition to value weighting each continent, the study also looks at the return of the average of the six continents, equally weighting each one. This index is referred to as the equally-weighted global market index.

Once the value-weighted global market index is created, a daily return is generated. In order to test whether or not one specific area consistently outperforms this index, the study looks at each country or continent's risk premium. Risk premium is "the return in excess of the risk-free rate of return that an investment is expected to yield. An asset's risk premium is a form of compensation for investors who tolerate the extra risk—compared to that of a risk-free asset—in a given investment."[24] The risk-free rate of return is the value-weighted global market index return. If one area or region were to consistently outperform the value-weighted global market index, the study would show a consistent positive risk premium.

In addition, the study does multi-variate regression analysis. A dummy variable equal to 0 or 1 for each country is created, where 1 represents that countries returns. Therefore, the dummy variable is an indicator that separates each country from the other. If the coefficient of a particular countries' dummy variable is positive and statistically significantly, there is an abnormal return above the index that can be earned by investing in that country or continent.

[24] *Risk Premium Definition | Investopedia*, Investopedia, www.investopedia.com.

However, if the coefficient is not statistically significant, investors are better off investing in the value-weighted global market index. Finding no statistically significant coefficients on a particular country dummy variable would support the Efficient Market Hypothesis.

In the first regression, the study looks at the correlation between each individual country or continent's return and the value-weighted global market index return. For the second regression, the study assigns a dummy variable to each country or continent whether or not the nation or continent is considered developed (1) or developing (0).[25] A continent is considered developed if a majority of the countries IMF voting shares are designated as developed, and a continent is considered developing if a majority of the countries IMF voting shares are designated as developing. For clarity, Europe, North America, and Oceania are classified as developed while Asia, Africa, and South America are classified as developing. For the third regression, the study looks at the correlation between each country's return on its amount of IMF voting shares.

Results

After value-weighting the value-weighted global market index as well as creating an equally-weighted global market index, the graph in Figure 1 shows the value of one dollar invested on March 18, 1996 (the inception date of the fund) of the value-weighted global market index and the equally-weighted global market index. It is more beneficial to invest in the equally-weighted global market index as opposed to the value-weighted global market index if an investor invests on March 18, 1996. However, with this comes more volatility within the fund, as can be seen in the more dramatic drop and surge between 2008-2010.

[25] *List of Developing Countries*, www.iugg2015prague.com

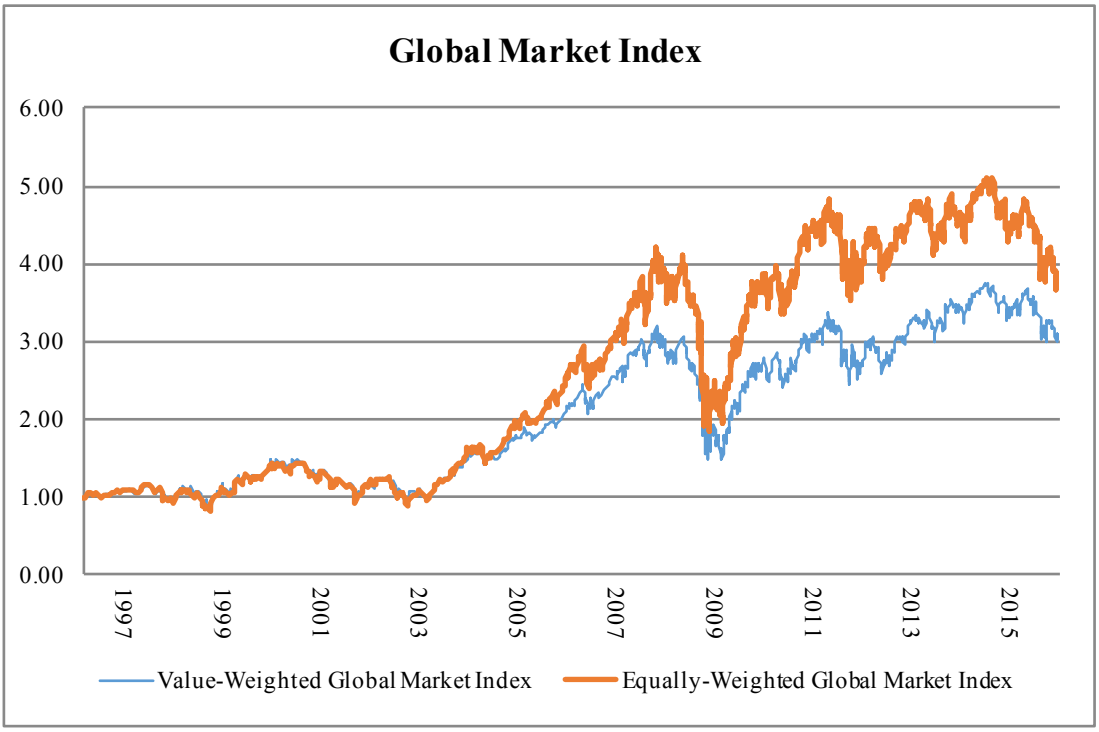


Figure 1 Value-Weighted Global Market Index and Equally-Weighted Global Market Index

Once the study generates the data to create the value-weighted global market index, the daily return of the fund is used as the risk-free return to generate risk premium. Figures 2-40 show the risk premiums of each country and continent observed. Tables 1-3 show the results of the regression analysis of the data observed.

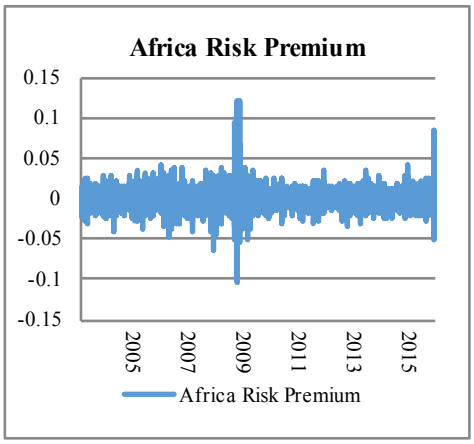


Figure 2 Africa Risk Premium

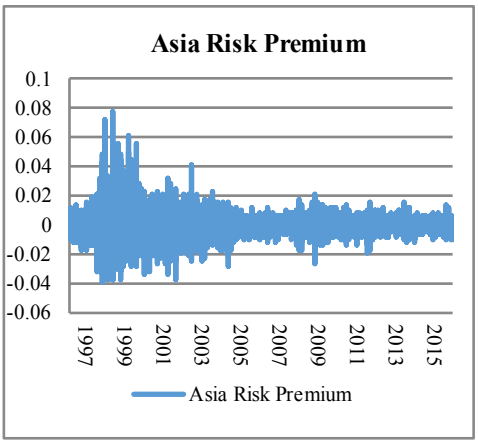


Figure 3 Asia Risk Premium

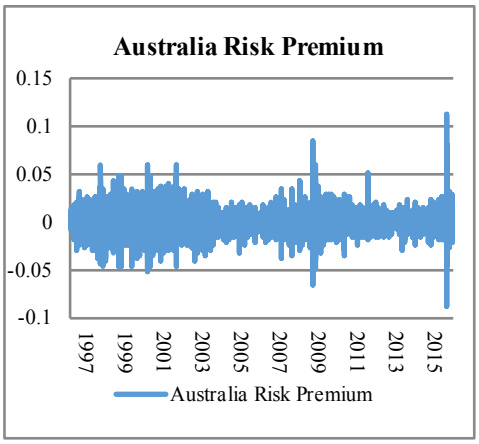


Figure 4 Australia Risk Premium

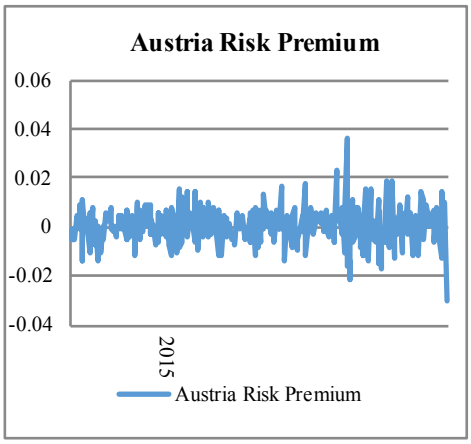


Figure 5 Austria Risk Premium

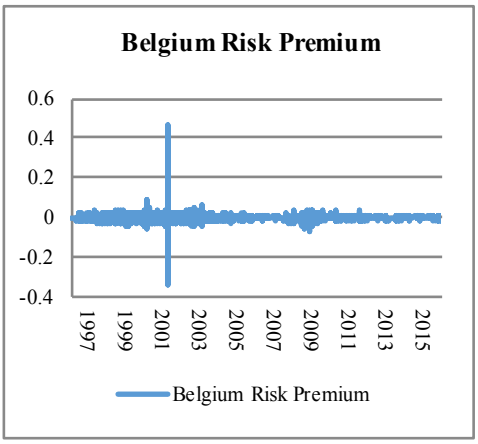


Figure 6 Belgium Risk Premium

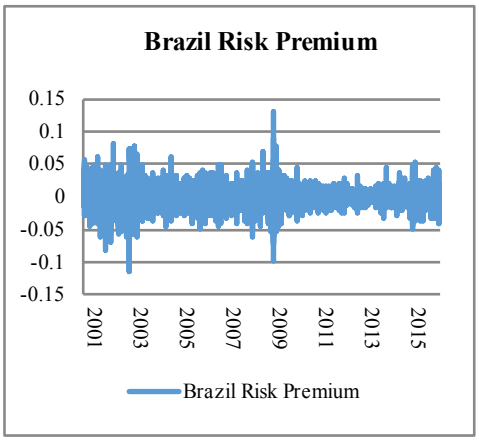
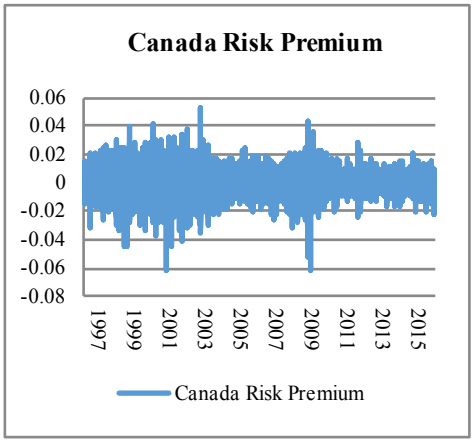


Figure 7 Brazil Risk Premium



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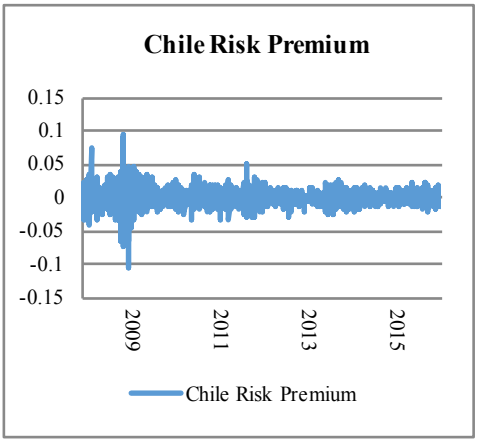


Figure 9 Chile Risk Premium

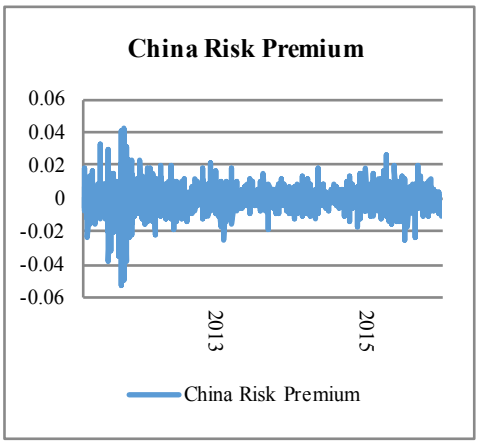


Figure 10 China Risk Premium

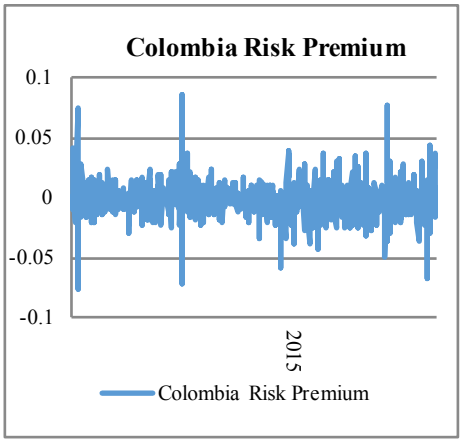
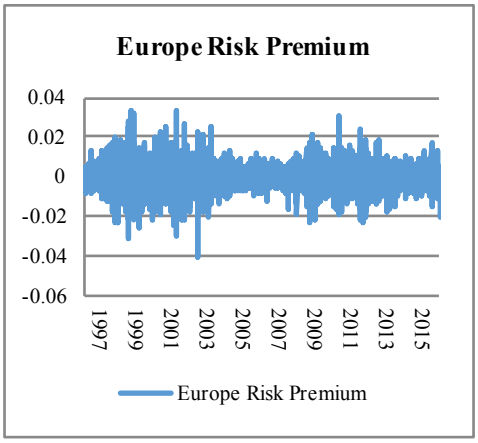


Figure 11 Colombia Risk Premium



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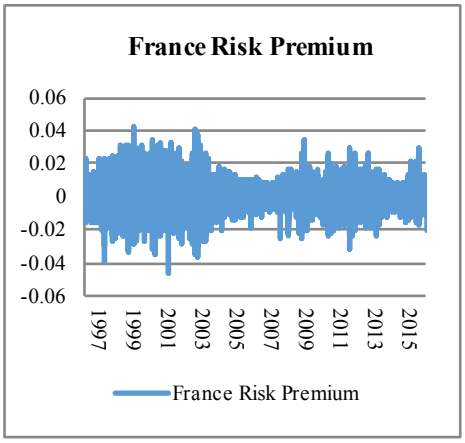


Figure 13 France Risk Premium

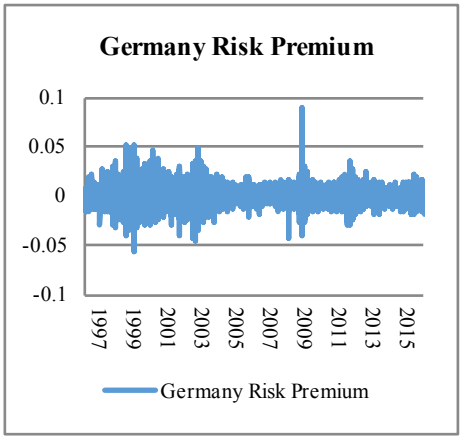
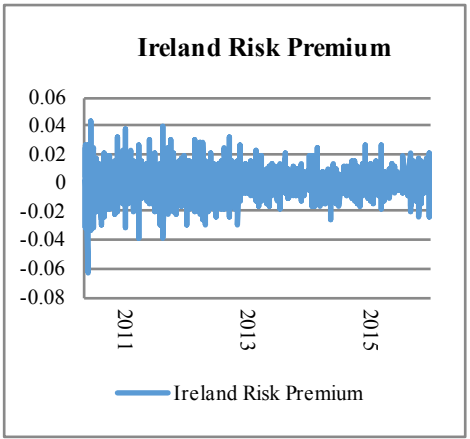


Figure 14 Germany Risk Premium

Figure 15 Indonesia Risk Premium



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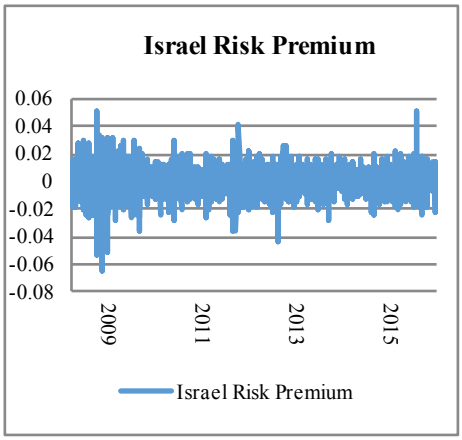

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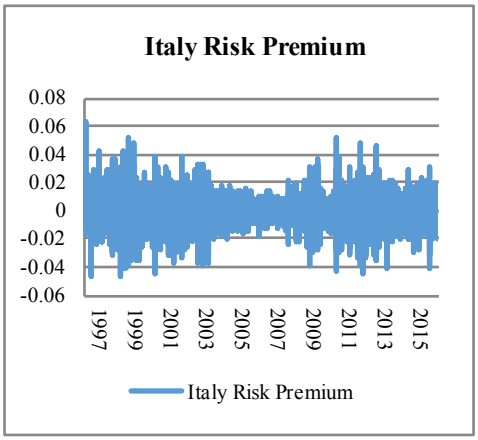

Figure 18 Italy Risk Premium

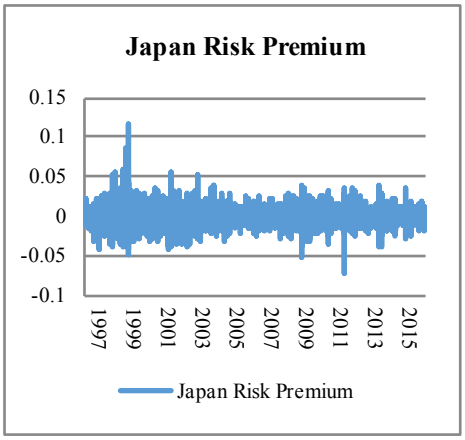

Figure 19 Japan Risk Premium

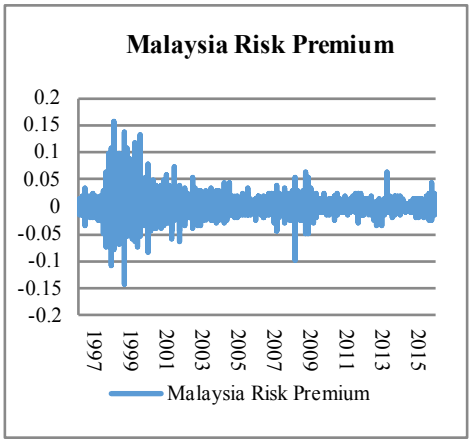

Figure 20 Malaysia Risk Premium

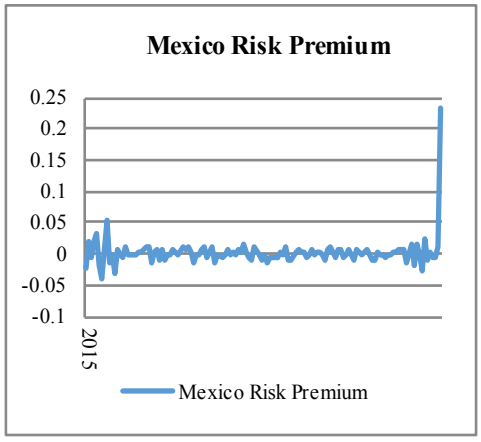

Figure 21 Mexico Risk Premium

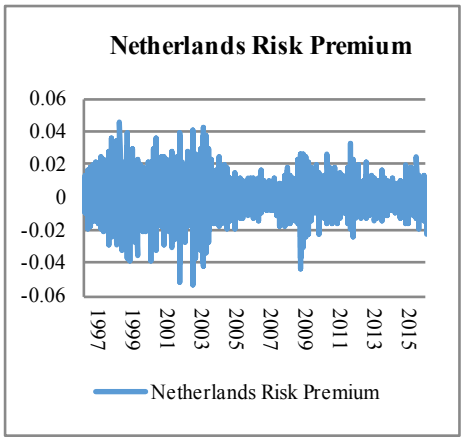

Figure 22 Netherlands Risk Premium

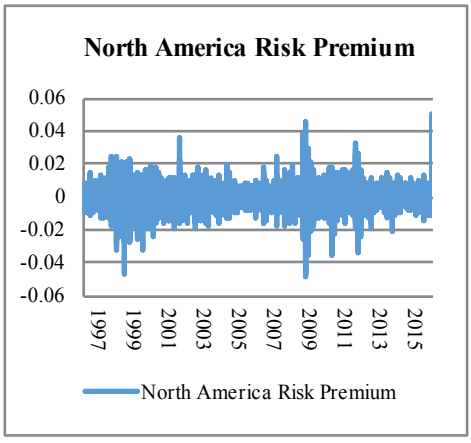

Figure 23 North America Risk Premium

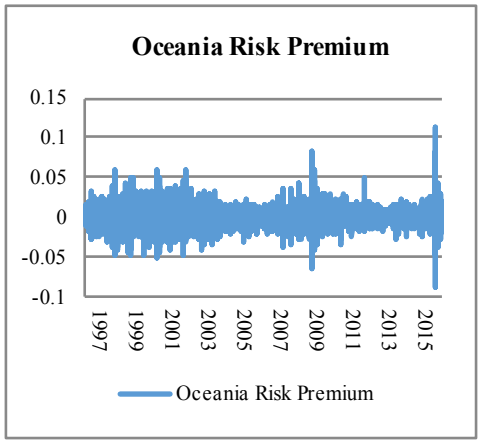

Figure 24 Oceania Risk Premium

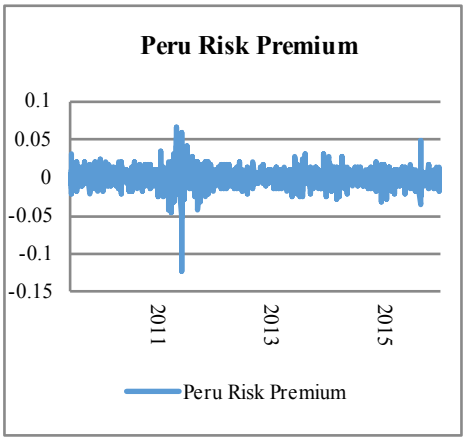

Figure 25 Peru Risk Premium

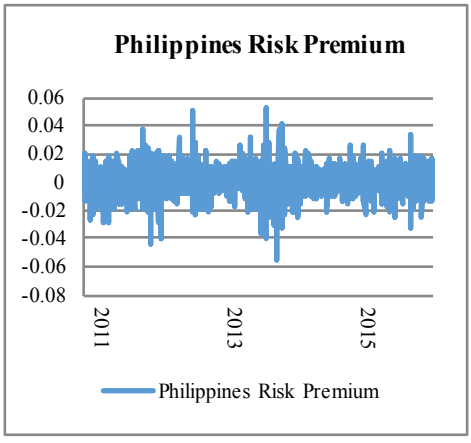

Figure 26 Philippines Risk Premium

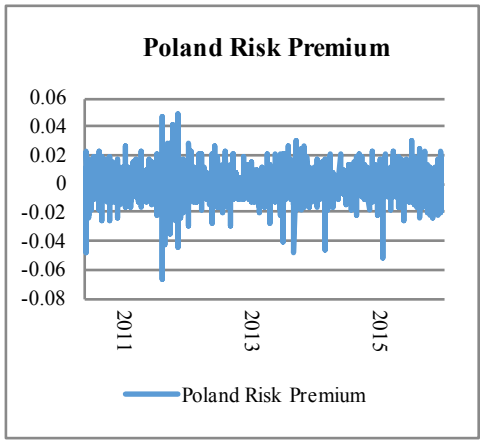

Figure 27 Poland Risk Premium

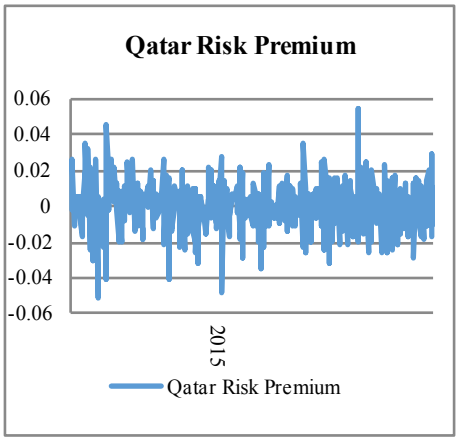

Figure 28 Qatar Risk Premium

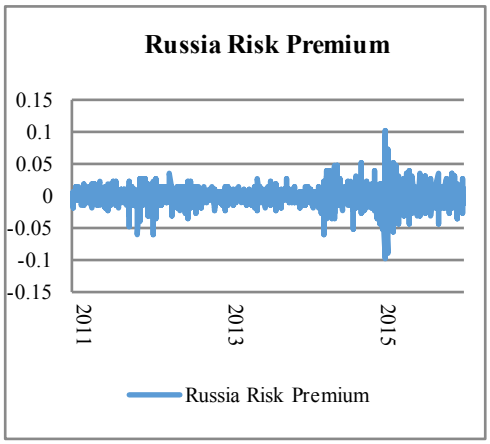

Figure 29 Russia Risk Premium

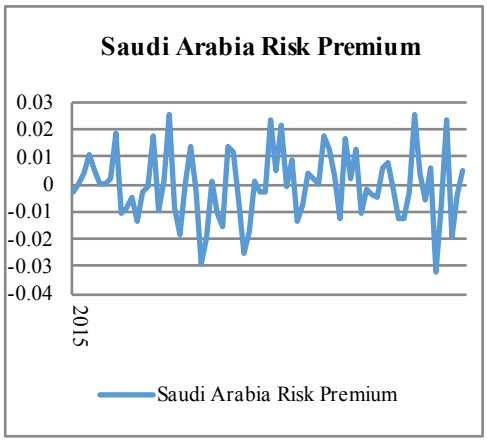

Figure 30 Saudi Arabia Risk Premium

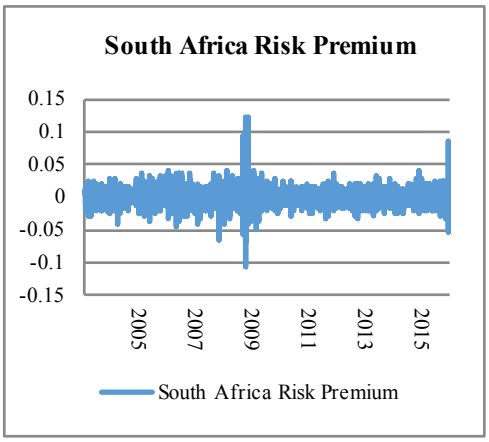

Figure 31 South Africa Risk Premium

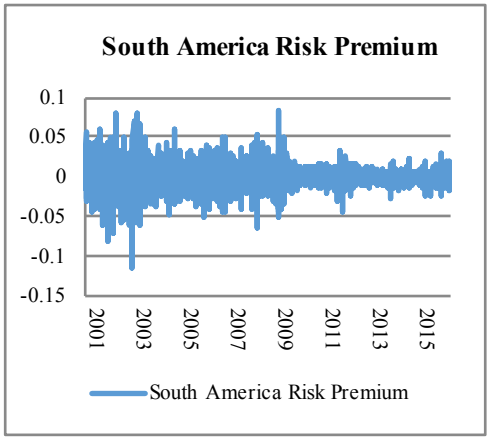

Figure 32 South America Risk Premium

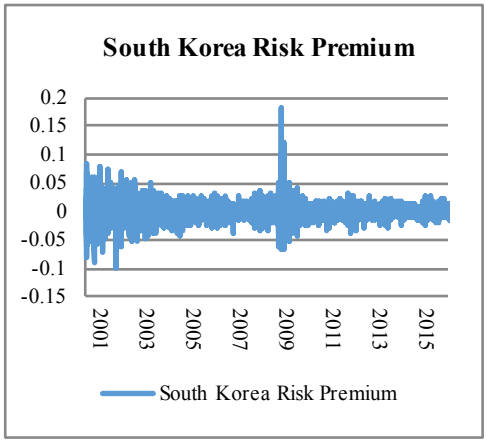

Figure 33 South Korea Risk Premium

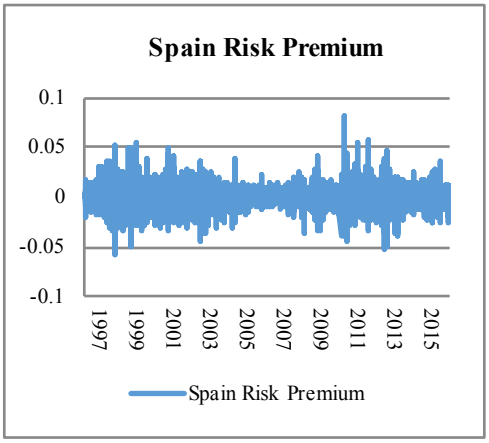

Figure 34 Spain Risk Premium

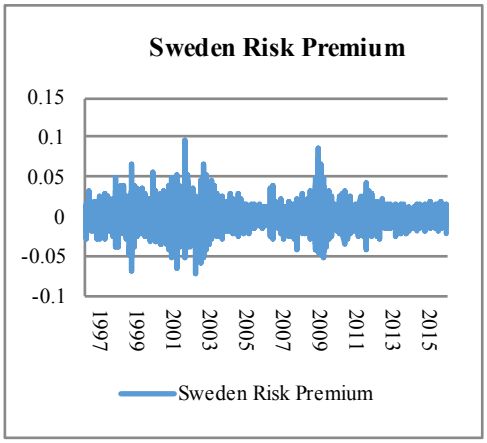

Figure 35 Sweden Risk Premium

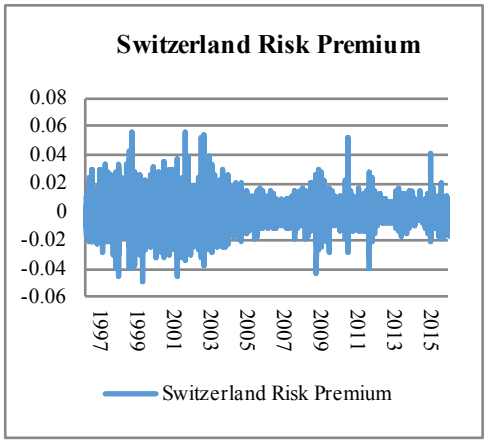

Figure 36 Switzerland Risk Premium

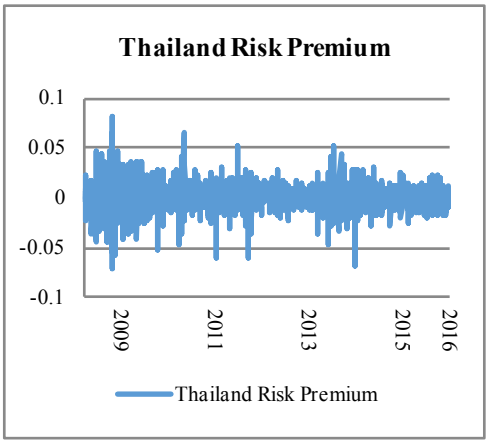

Figure 37 Thailand Risk Premium

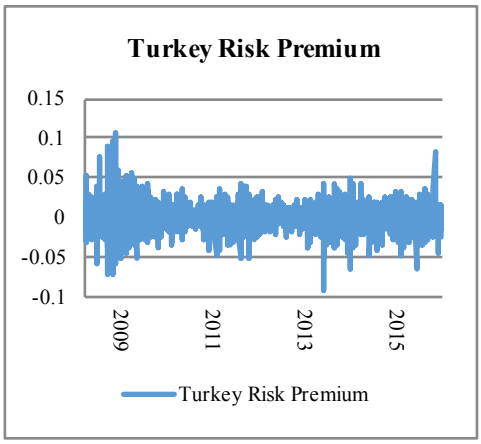

Figure 38 Turkey Risk Premium

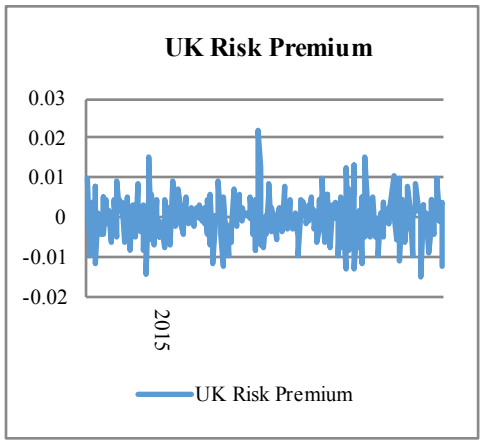

Figure 39 UK Risk Premium

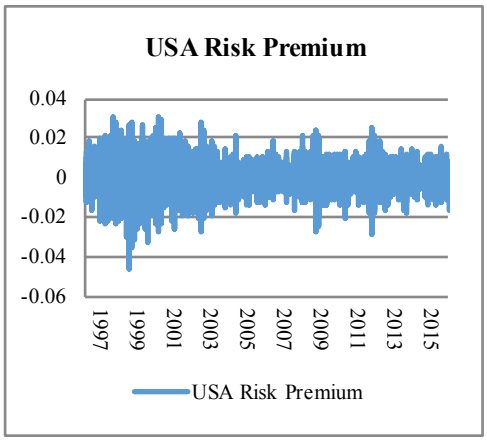

Figure 40 USA Risk Premium

Variable	Coefficient	P-Value
Global Index	1.10970	0.000
Australia	0.00041	0.765
Austria	0.00097	0.521
Belgium	0.00035	0.799
Brazil	0.00043	0.754
Canada	0.00035	0.798
Chile	0.00015	0.916
China	0.00038	0.785
Colombia	-0.00077	0.593
France	0.00033	0.811
Germany	0.00036	0.793
Indonesia	0.00026	0.854
Ireland	0.00071	0.609
Israel	0.00034	0.806
Italy	0.00028	0.839
Japan	0.00011	0.935
Malaysia	0.00022	0.875
Mexico	0.00276	0.107
Netherlands	0.00029	0.834
Peru	0.00004	0.976
Poland	0.00012	0.934
Philippines	0.00054	0.702
Qatar	0.00024	0.870
Russia	-0.00003	0.985
South Africa	0.00045	0.747
South Korea	0.00052	0.705
Spain	0.00042	0.761
Sweden	0.00048	0.727
Switzerland	0.00033	0.810
Thailand	0.00051	0.715
Turkey	0.00041	0.770
United Kingdom	0.00048	0.751
United States	0.00039	0.779
Constant	-0.00030	0.826
Number of Observations	92,682	

Table 1 Country Return onto World Return Regression

Variable	Coefficient	P-Value
World Return	1.109678	0.000
Developed	0.000036	0.682
Constant	0.000013	0.863
Number of Observations	92,682	

Table 2 Developed Nation onto Value-Weighted Global Market Index Return Regression

Variable	Coefficient	P-Value
World Return	1.1097677	0.000
Developed	0.0000494	0.592
Voting Shares	-0.0006632	0.624
Constant	-0.0000204	0.792
Number of Observations	92,682	

Table 3 Voting Shares onto Value-Weighted Global Market Index Return Regression

Based off of the results from the tables above, there is no one country or continent that consistently outperforms the value-weighted global market index. Because of this, the initial hypothesis that there would be no one country or continent that consistently outperforms the value-weighted global market index based on the Efficient Market Hypothesis holds true, proving that global diversification benefits the investor in the long run.

In addition, in each regression analysis there is no single correlation between the country or continent return on the world market index, developed or developing nation on the value-weighted global market index's return, or voting shares on the value-weighted global market index's return that is statistically significant. This is shown by each analysis attaining a P-value greater than 0.05. In order for a regression analysis to be considered statistically significant, the p-value must be equal to or less than 0.05. The first analysis reaffirms the risk premium data that no one country or continent consistently outperforms the value-weighted global market index. The only area that appears close to attaining statistical significance is Mexico, with a P-value of

0.107. However, this could be due to the last data point of the analysis being an outlier, almost four times higher than any other number in the sequence.

The second analysis affirms that there is no correlation between a country or continent's performance and its status as a developed or developing nation or continent. This means that a country or continent's status as developed or developing does not affect its performance. The final analysis affirms that there is no correlation between the amount of IMF voting shares and the country or continent's performance.

To further this study, it is recommended that more countries are represented to better reflect the value-weighted global market index. This can be accomplished by looking at other non-iShares ETFs. In addition, another area for future study would be expanding past MSCI indices and looking at other indices within a specific country. Every nation has several different sectors that are affected by market fluctuations, so adding more funds within a country not only diversifies a country's portfolio, but it also allows for a more accurate representation of the nation's economy as opposed to only one index to represent the whole country's economy.

Conclusion

The main takeaway from this study is that the results support the Efficient Market Hypothesis. The Efficient Market Hypothesis says one area cannot earn abnormal returns in relation to the global economy. Because there is no one area that consistently outperforms the value-weighted global market index, the Efficient Market Hypothesis holds true. In the regression analysis, the constant is also referred to as a country's alpha. Alpha is "a stocks expected return beyond that induced by the market index; its expected excess return when the market's excess return is zero."[26] In this study's case, the market index when calculating the

[26] Bodie, Zvi, *Essentials of Investments* (New York, NY), 171.

country's alpha is the value-weighted global market index. However, since no variable is statistically significant within this regression analysis, no positive alpha holds true.

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