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Taking advantage of credit default swaps in European markets

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Taking Advantage of Credit Default Swaps in European Markets

by

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Executive Summary

Credit default swaps are the leading indicators in bond and equity markets. The movement of credit default swaps can explain sovereign bond and equity market movements in distressed countries. Investors can take advantage of credit default swap volatility and movement in both sovereign credit and equity markets. In stable European countries, credit default swaps show little evidence of being the leading driver of sovereign bond and equity markets.

Introduction

The European debt crisis began to unfold in early 2010 when Greece posed mounting budget deficits and a debt to GDP of 113%. Amid growing concerns about Greece, Portugal, Ireland, Italy, and Spain have also become under attack due to mounting debt worries and growing budget deficits. The European sovereign debt crisis has caused many investors to pull out of equity markets and hedge sovereign bonds with credit default swaps.

This paper explores credit default swaps' effect in the bond and equity market in distressed European countries such as Portugal and Spain, compared to stable European countries such as Germany and the Netherlands. This paper compares distressed European countries to stable European countries and determines which countries' equity and bond markets are impacted more by credit default swaps. The data starts on March 12, 2010 and ends on March 9, 2012. This time period captures the development of the European crisis. Data from Spain, Portugal, Germany, and the Netherlands was retrieved over the two year time period and analyzed.

The data finds over this two year period that credit default swaps in distressed Europe have a greater impact on the equity and bond markets when compared to stable European countries. It finds that Portugal and Spain have a stronger correlation with regards to equity prices and credit default swap prices. It also finds that credit default swaps in the two distressed countries have much larger adjusted R^2 than that of the two stable countries, which explains the impact credit default swaps have on the markets.

This research is important because it shows the impact of credit default swap pricing changes when compared to the equity and bond markets. Looking through this research allows investors to take advantage of rising and falling credit default swap prices in both the bond and equity markets, specifically in distressed Europe. The findings are useful for investors making decisions in stable Europe by allowing investors to understand the miniscule role credit default swaps play in driving the markets. Finally, this research allows investors to see the relationships between distressed and stable European markets to make investment decisions.

The remainder of this paper will be organized as follows: section 2 reviews existing literature of the lead-lag relationship between credit defaults swaps, bonds, and stocks; section 3 will examine March 2010 – March 2012 for Portugal, Spain, Germany, and the Netherlands; section 4 details empirical results and findings of the three markets; section 5 details a robustness test and sensitivity analysis; and finally, section 6 will conclude the findings and research of this study.

Literature Review

The concept of a credit default swap (CDS) is easy to understand: it's simply an investment instrument, where "one party pays a periodic fee to insure the debts of an entity, [whether it is a government entity, specified corporation, mortgage, or municipality], for a specified period of time (Murphy, 2008)." One might buy a CDS in order to hedge a position of credit or sell a CDS in order to take on credit risk. "In 1998, the total size of the credit default swap market was relatively small of $180 billion (Stulz, 2010)." Since that time frame, credit default swaps have grown exponentially to the amount of approximately "$57 trillion (Stulz, 2010)."

With Europe's current economic condition being uncertain, there are many events coming out of the eurozone that drive the market on a daily basis. The credit default swap market allows investors to see the market sentiment on a particular piece of credit and compare it

to the credit rating given by a rating agency. As of April 1, 2012, Standard and Poor's has issued the credit rating of A to Spain, BB to Portugal, AAA to Germany, and AAA to the Netherlands. According to Coronado, Corzo, and Lazcano, the "worsening credit condition makes [the lead-lag relationship between credit default swaps and the stock market] stronger (Coronado, Corzo, and Lazcano, 2012).

A study done by Blanco, Brennan, and Marsh [2005] finds that the credit default swap market "turns out to be a better place to assess a [country's] credit risk than the market for that [country's] bonds (Stulz, 2010)." This study finds that information streams from credit default swap prices to bond prices. In a different study by Fung, Sierra, Yau, and Zhang [2008], it finds that the "volatilities of both investment-grade and high yield CDS indices seem to lead the stock market volatility (Fung, Sierra, Yau, and Zhang, 2008)." The study finds that changes in credit default swap prices happen before stock markets have time to respond.

As the European debt crisis began to unravel in 2010, credit default swap markets became the leading indicator with respect to both equity and credit markets. This advantage is due to the increased liquidity in the credit default swap market. "Sovereign CDSs provide effective hedges not only for holders of government bonds but also for international banks that extend credit to that particular country's corporations and banks, for investors in stocks, and for entities that have significant real estate or corporate holdings in the country. For many of these participants, the sovereign CDS acts as proxy hedge for credit risk in the country (Corzo, Biscarri, and Lazcano, 2012)." Since there are many different types of investors using these sovereign credit default swaps, the impact on liquidity has allowed the credit default swap market to lead the bond market.

Finally, Cory Mitchell [2011] finds that the bond market leads the stock market. This is due to increased borrowing costs from rising yields, which in-turn affects the cost of conducting business. As this happens, the stock market will begin to decline. This information allows investors to take advantage of European credit and equity markets through price movements in the leading indicator, credit default swaps.

Section 3: Sample Selection, Variable Definition, and Study Design
The time period for this research experiment is March 12, 2010 – March 9, 2012. This time period is used due to the development of the European debt crisis within the eurozone. During this time period, a sample of the country's 5 year credit default swap, 1 – 10 year total return bond index, and stock index is taken over a weekly basis. This sample gives a total of 105 observations per index per country.

The country's 5 year credit default swap is used because it is considered a benchmark for a country's perceived credit worthiness. A Bloomberg 1-10 year total return tracking index is used because it correlates with the short term 5 year credit default swap and allows investors to go through time and see the value of the bonds that have gone "off the run". Finally, the equity indexes are chosen by finding the county's major equity benchmark index.

While conducting this research on bond, equity, and credit default swap markets, the countries Germany, the Netherlands, Spain, and Portugal are used. These countries provide a glimpse of countries with stable economies over the past two years as well as a glimpse of countries that are currently fighting the debt crisis.

Germany is the strongest economy within the European Union. Although the current debt to GDP is 80%, Germany has seen a decreasing budget deficit over the past few years. The German Finance Minister believes the reason for the higher debt to GDP than in the past is due

to "the additional payments to the European Stability Mechanism (Weiss, 2012)." Standard and Poor's has given the highest credit rating of AAA with a stable outlook to Germany. This allows them to have low borrowing and financing costs for the future.

The Netherlands' economy is projected to grow at a rate of 1% during 2012. The Netherlands expect a decreasing budget deficit of 2.2% through 2012. The Dutch believe that the unemployment rate of 4.25% will be sustainable through the year 2012 (Netherlands Economic Overview, 2012). Standard and Poor's has issued an AAA rating with a stable out for the Netherlands. This has led investors to find safety in Netherland bonds. The Netherlands, like Germany, has one of the most stable economies in the European Union.

Spain, as Europe's fourth largest economy, has been facing difficult times. On April 5, 2012, Spain raised concerns for the second time that the country may need international austerity measures. On April 4, 2012, Spain struggled to sell government bonds at auction. This "struggle pushed interest rates to its highest in three months (Taylor, 2012)." Standard and Poor's has recently issued a credit rating downgrade to Spain. The new credit rating is A with a negative outlook due to higher borrowing costs and mounting budget deficits.

Portugal has recently received a 78 billion euro bailout from the European Union and the International Monetary Fund. Portugal currently has a 93.30% debt to GDP. Standard and Poor's has issued a credit rating of BB to Portugal, which indicates that it is noninvestment grade. Portugal also has the highest unemployment rate in the European Union, 24%. Although the European Union sees that "Portugal is making progress in reforming its economy and taming its debt" many investors see Portugal as the next failing country (Neuger, 2012)."

As discussed in the literature review, it is apparent that credit default swaps are the leading indicator of both the bond and equity markets. As Mitchell [2011] discusses, the bond market has a slight lead advantage over the stock market. Therefore, the equity market is used as a dependent variable during analysis of credit, equity, and credit default swap markets. However, in another analysis, the sovereign bond market is used as the dependent variable when regressing sovereign bonds and credit default swaps.

After defining the variables of the experiment, regression analyses are run in order to determine the magnitude and effect credit default swaps have on underlying markets in the countries. After regression analyses are run, correlation tables are configured in order to see the strength of the relationship between markets within the countries.

When volatility is high and investors have great fears about the debt crisis, investors may flee to credit default swaps, thereby bidding up the prices (note: the European Union placed a banned on naked CDS positions). As CDS prices increase, studies show that one can take advantage of falling stock and bond market prices or hedge their current investments from big moves. This effect is seen more drastically in distressed Europe when compared to stable European countries.

4. Empirical Results

Table 1 shows descriptive statistics for Portugal's three asset classes. The mean for the credit default swaps is around 649 basis points with a standard deviation of 353 basis points. The standard deviation of the credit default swap is 54% of the mean price. The Portugal bond index has a mean of 230 with a standard deviation from 19. This standard deviation to mean ratio is approximately 8%. Finally, the equity index has a mean of 7012 with a standard deviation of 920. The equity index's standard deviation to mean price is approximately 13%. The credit default swap market has a range of 1324 basis points, the bond index has a range of

69, and the PSI 20 index has a range of 3037. These ranges show the big price movements that distressed European countries have.

Table 1.
Portugal Descriptive Statistics

Descriptive statistics from March 2010 – March 2012 for Portugal's credit default swaps, sovereign bond index, and equity index are described below.

Name	Portugal Credit Default Swap	Portugal Bond Index	Portugal PSI 20 Index
Mean	648.789	230.093	7012.123
Median	515.457	233.206	7366.150
Standard Deviation	352.153	19.28	920.495
Kurtosis	-1.265	-1.208	-1.142
Skewness	0.375	-0.192	-0.609
Minimum	111.350	190.027	5206.100
Maximum	1435.498	259.521	8243.460
25th Quartile	349.420	213.525	6048.700
75th Quartile	1044.380	249.923	7786.580

Spanish markets are also unstable in the European economy. The mean price for Spanish credit default swaps is 285 basis points while the standard deviation is 88 basis points. While comparing standard deviation with price, it is found that standard deviation is 30% of the price, which shows lesser volatility when compared to Portugal's market. The Spanish bond index is 291 with a standard deviation of 7. This shows that standard deviation makes up 2.4% of the mean price for the bond index. Finally, the IBEX index has a mean price of 9770 with a standard deviation of 972. This is 9% standard deviation when comparing to price. Spain, although not as distressed as Portugal, has similar ranges to Portugal. Spain has a range of 389 basis points in the credit default swap market, 34 point range in the bond index, and a 3631 point range in the IBEX index. Once again, these big price movements show underlying volatility within the market.

Table 2.
Spain Descriptive Statistics
> Descriptive statistics from March 2010 – March 2012 for Spain's credit default swaps, sovereign bond index, and equity index are described below.

Name	Spain Credit Default Swap	Spain Bond Index	Spain IBEX Index
Mean	284.83	291.063	9770.030
Median	261.837	290.329	10059.300
Standard Deviation	87.614	6.901	971.979
Kurtosis	-0.772	0.961	-1.224
Skewness	0.107	0.859	-0.355
Minimum	95.091	277.428	7763.5
Maximum	484.444	311.406	11394.200
25th Quartile	221.322	286.048	8734.15
75th Quartile	366.717	294.720	10594.000

Germany is considered the strongest economy within the European Union. After collecting data over the past two years, it is found that Germany had a mean price of 58 basis points for their credit default swaps with a standard deviation of 24. This is 41% standard deviation with regards to mean price. The reason behind this large percent move is due to credit worthiness of Germany, which keeps credit default swap prices low. The German Bond Index has a mean of 250 with a standard deviation of 8. The standard deviation makes up 3% of the mean price of the bond index. The German equity market index, DAX, has a mean price of 6473 with a standard deviation of 599. This standard deviation to mean price is 9%. Although these means to standard deviations may look similar to a distressed country, the quartiles, minimums, and maximums, of the three markets show that Germany is a stable country with low volatility and price movements.

Table 3.
German Descriptive Statistics
> Descriptive statistics from March 2010 – March 2012 for Germany's credit default swaps, sovereign bond index, and equity index are described below.

Name	German Credit Default Swap	German Bond Index	German DAX Index
Mean	58.382	249.568	6473.219
Median	46.618	246.676	6291.670
Standard Deviation	24.099	7.642	599.113
Kurtosis	-0.587	-1.021	-1.122
Skewness	0.853	0.627	-0.001
Minimum	26.158	238.792	5189.93
Maximum	117.67	264.026	7514.460
25th Quartile	40.028	244.209	6001.450
75th Quartile	80.118	257.468	7060.055

The Netherlands has a stable economy when being compared to the eurozone. The Netherlands has a mean credit default swap of 62 basis points with a standard deviation of 29 basis points. This is 47% of standard deviation with regards to mean price. The Netherland Bond index has a mean price of 258 with a standard deviation of 7. Or, the standard deviation is 3% of the mean. The AEX index has a mean price of 330 with a standard deviation of 25. This shows that standard deviation is 8% of the mean price. Similar to Germany, Netherlands has a range of 111 basis points in credit default swaps, 26 in the bond index, and 109 in the AEX index. This range shows small movements throughout the market even though the standard deviations to mean price is similar to distressed European countries.

Table 4.
Netherland Descriptive Statistics
> Descriptive statistics from March 2010 – March 2012 for the Netherland's credit default swaps, sovereign bond index, and equity index are described below.

Name	Netherland Credit Default Swap	Netherland Bond Index	Netherland AEX Index
Mean	61.947	258.450	330.125
Median	48.379	255.505	333.780
Standard Deviation	28.916	7.394	25.331
Kurtosis	-0.330	-0.919	-0.282
Skewness	0.969	0.620	-0.545
Minimum	28.335	247.381	264.720
Maximum	139.842	273.194	347.190
25th Quartile	41.542	253.174	313.210
75th Quartile	86.798	265.680	349.980

When comparing the descriptive statistics between the four countries, a clear distinction is seen in the data. For both the distressed countries and the stable countries, one can see close percentages between the standard deviation and mean. Although this percentage remains close for all indexes and countries, a clear difference, which separates Portugal and Spain from the Netherlands and Germany, is the minimum, maximum, and quartiles. This data allows the investors to see the volatility between the countries and how the stable countries have relatively small movements.

Table 5 shows a correlation table between Portugal's three markets: equity, debt, and credit default swaps. This table shows a strong negative relationship between Portugal's credit default swaps and bond market as well as the credit default swaps and PSI 20 equity index. Although equity and bond prices usually move in opposite directions, Portugal's bond and equity indexes are positively correlated. This is due to investor's perceived safety of Portugal's sovereign bonds. Investors have questioned the credit worthiness of Portugal and do not want to take on credit risk. Therefore, when investors are fleeing equity markets they are also fleeing sovereign bond markets as seen in Table 5. Finally, as expected in Portugal due to instability, credit default swaps and the bond index have an inverse relationship. This inverse relationship shows that as credit default swaps move higher the bond index will move lower.

Table 5.
Portugal Correlation Table

This table shows the correlation of Portugal's credit default swaps, sovereign bond index, and equity index from March 2010 – March 2012.

Asset	Portugal CDS	Portugal Bond Index	PSI 20 Index
Portugal CDS	1***		
Portugal Bond Index	-0.829***	1***	
PSI 20 Index	-0.851***	0.529***	1***

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 6 is a correlation table between Spain's equity, sovereign bond, and credit default swap markets. Spain's debt crisis has more recently developed and investors have not yet lost the faith of the Spanish government. Here, a negative relationship between the bond index and IBEX equity index is seen. This shows that as investors move into sovereign bonds that equity prices will decrease. Expect to see this relationship to approach 0, if not turn positive in 2012. There is a strong positive relationship between credit default prices and the equity index. This shows that increased movements in credit default prices can be followed by a decrease in equity prices. There is a weak positive relationship between Spanish credit default swaps and bond indexes. This positive relationship can be attributed to the investors perceived credit worthiness of the Spanish government. Although investors are still participating in the sovereign bond market which will lower yields, the same investors are hedging these bonds with credit default swaps which also cause prices to rise. If problems keep worsening out of Spain, then this positive correlation can be expected to turn negative.

Table 6.
Spain Correlation Table

This table shows the correlation of Portugal's credit default swaps, sovereign bond index, and equity index from March 2010 – March 2012.

Asset	Spain CDS	Spain Bond Index	IBEX Index
Spain CDS	1***		
Spain Bond Index	0.171***	1***	
IBEX Index	-0.857***	-0.331***	1***

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

The German correlation table shows a strong positive relationship between credit default swaps and the bond index. This can be attributed to two factors: liquidity and investors implementing a short-term hedge on German sovereign bonds. As expected, there is a strong positive relationship for sovereign bonds and equity index. This shows that as bond prices fall due to sell offs, the equity prices can expect to rise. There is also a negative relationship between credit default swaps and equity indexes. This shows that as volatility increases in credit default

swaps, investors will start closing out positions within the equity indexes, causing the equity market to fall.

Table 7.
German Correlation Table

This table shows the correlation of Portugal's credit default swaps, sovereign bond index, and equity index from March 2010 – March 2012.

Asset	German CDS	German Bond Index	DAX Index
German CDS	1***		
German Bond Index	0.873***	1 ***	
DAX Index	-0.408***	-0.433***	1***

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

The Netherlands correlation table shows a strong negative correlation between the bond and equity index. This strong negative correlation shows investor tradeoffs between bond and equity indexes. The credit default swap and bond index also have a strong positive correlation due to liquidity and investors hedging bonds and preventing contagion within their portfolios. Finally, there is a strong negative correlation between credit default swap prices and equity prices. This can be attributed to the increased volatility in credit default swap prices, which signals investors to sell equities.

Table 8.
Netherland Correlation Table

This table shows the correlation of Portugal's credit default swaps, sovereign bond index, and equity index from March 2010 – March 2012.

Asset	Netherland CDS	Netherland Bond Index	AEX Index
Netherland CDS	1***		
Netherland Bond Index	0.884**	1***	
AEX Index	-0.675***	-0.741***	1***

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 9.

Multivariate Regression Analysis

Regression Analysis ran with equity indexes being dependent on credit default swaps and bond indexes during the March 2010 – March 2012 time period. T-statistics are in parentheses.

Country	Portugal	Spain	Germany	Netherlands
Intercept	15428.787***	20180.528***	12940.963***	922.002***
	(16.719)	(10.312)	(3.873)	(7.756)
Credit Default Swaps	-3.444***	-9.147***	-3.177	-0.077
(β1)	(-17.758)	(-17.098)	(-0.701)	(-0.624)
Sovereign Bond Index	-26.868***	-26.815***	-25.172*	-2.272***
(β2)	(-7.585)	(-3.948)	(-1.760)	(-4.673)
Significant F	0.000	0.000	0.000	0.000
Adj. R²	0.821	0.765	0.175	0.542
N	105	105	105	105

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 9 is a regression analysis of equity prices being dependent on bond indexes and credit default swaps for the four countries of comparison. When comparing the distressed countries to the stable countries, one can see that there is a stronger relationship in the equity market with regards to the credit default swap market and bond market in Spain and Portugal. When looking at Portugal and Spain, movements in the credit default swap and sovereign bond markets can explain 82% and 77% of variance in equity prices than compared to 18% and 54% of the variance in Germany and the Netherlands, respectively. Germany's low variation can be attributed to their economic size. Since Germany's economy is the largest within the eurozone, it is affected more by changes within the Euro. This variation can also be attributed to Germany's ability to help provide "bailout" to smaller countries.

Table 10.
Regression Analysis

> Regression Analysis ran with bond indexes being dependent on credit default swaps during the March 2010 – March 2012 time period. T-statistics are in parentheses.

Country	Portugal	Spain	Germany	Netherlands
Intercept	259.525***	287.233***	233.411***	244.448***
	(116.517)	(126.086)	(242.473)	(303.829)
Credit Default Swaps	-0.045***	0.013***	-0.278***	0.226***
($\beta1$)	(-15.019)	(1.758)	(18.145)	(19.189)
Significant F	0.000	0.082	0.000	0.000
Adj. R^2	0.683	0.019	0.759	0.779
N	105	105	105	105

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 10 shows Portugal's, Germany's, and the Netherlands' credit default swaps having a strong variation in the respective countries' bond index. The reason Spain has such a low adjusted R^2 is explained by the large numerical range in credit default swap prices but a small numerical range in the bond index. Adjusted R^2 shows the percentage of Y that can be explained by X. Spain's debt crisis is recently developing compared to Portugal's, where financial turmoil came into play during Early 2010. Portugal's, Germany's, and the Netherlands' credit default swap can explain 68%, 76%, and 78 %, of the bond indexes, respectively.

5. Robustness Test/Sensitivity Analysis

Table 11.
Robustness Test 2010 – 2011

> Regression Analysis ran with equity indexes being dependent on credit default swaps and bond indexes during the March 2010 – March 2011 time period. T-statistics are in parentheses.

Country	Portugal 2010 – 2011	Spain 2010 – 2011	Germany 2010 – 2011	Netherlands 2010 – 2011
Intercept	12260.099***	-3735.4	12739.27***	1090.384***
	(3.293)	(-0.543)	(2.848)	(7.584)
Credit Default Swaps	-0.968	-1.766	31.280***	0.905***
($\beta1$)	(-0.984)	(-1.000)	(5.141)	(3.918)
Sovereign Bond Index	-17.489	50.087**	-31.210*	-3.118***
($\beta2$)	(13.846)	(2.202)	(-1.713)	(-5.408)
Significant F	0.443	0.000	0.000	0.000
Adj. R^2	-0.007	0.260	0.347	0.391
N	53	53	53	53

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 12.
Robustness Test 2011 – 2012

Regression Analysis ran with equity indexes being dependent on credit default swaps and bond indexes during the March 2011 – March 2012 time period. T-statistics are in parentheses.

Country	Portugal 2011 - 2012	Spain 2011 – 2012	Germany 2011 – 2012	Netherlands 2011 – 2012
Intercept	14028.38***	19920.46***	2106.787	650.943***
	(14.239)	(15.067)	(0.600)	(3.261)
Credit Default Swaps	-3.708***	-11.418***	-30.823***	-0.358**
(β1)	(-18.531)	(-22.2001)	(-6.472)	(-1.959)
Sovereign Bond Index	-19.176***	-23.264***	26.149*	-1.158
(β2)	(4.456)	(-5.003)	(1.739)	(-1.435)
Significant F	0.000	0.000	0.000	0.000
Adj. R²	.872	0.926	0.706	0.533
N	52	52	52	52

* Indicates statistical significance at the 0.10 level.
** Indicates statistical significance at the 0.05 level.
*** Indicates statistical significance at the 0.01 level.

Table 12 is more robust due to changing economic factors within the United States during the 2010 – 2011 periods. During this 2010 – 2011 time period the United States GDP contracted 1.30% to 1.70%, which caused European stock indexes to plummet. Spain and Portugal's economy is more dependent on United States; therefore, changing US economic conditions are a confounding variable effecting Spanish and Portuguese stock indexes that were not included within Table 11.

However, during the 2011 – 2012 time period the European debt crisis peaked on a Greek default and the United States' economy strengthened, which allowed investors to focus on credit default swaps, equity prices, and the credit worthiness of the European countries rather than the impact the United States' economy would have. Seen in table 12, the adjusted R² numbers are higher due to volatility within the markets and investors fleeing to credit default swaps in order to hedge portfolios from defaults and equity loses. Table 12 shows a significantly stronger variation between credit default swaps and bond markets to equity markets.

6. Conclusion

In conclusion, it is found that in the distressed European countries, credit default swaps had a bigger impact on bond and equity markets than in stable European economies. Through the analysis performed, it is found that Netherland had the most resistant bond and equity markets to credit default swaps. This can attributed to the size and isolation it has between the distressed countries. Unlike Netherland, Germany is intertwined with the distressed countries and is little effected by credit default swaps. Germany's size and backing of the European Union has previously put it in a vulnerable spot; however, it should remain stable through 2012.

Currently, European countries are fighting the debt crisis with more debt. The only way to be able to seek stability is to run a budget surplus. Although austerity measures and bailouts are being implemented, mounting budget deficits and high debt to GDP ratios will prove a problem in the future. At some point in time these bailouts must be repaid; currently, the bailouts and austerity measures are putting off more trouble for a later date. Portugal will most

likely follow Greece's path and take voluntary haircuts until a restructuring plan is agreed upon. Spain, although not as distressed as Portugal, will start facing greater problems after Portugal's haircuts, and will eventually follow the same path as Greece and Ireland. Although there is not a perfect hedge in portfolio management, this paper explained how investors can take advantage of credit default movements within stable and distressed European countries within the equity and bond markets.

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