

**The role of macroeconomic news in sovereign CDS markets:  
Domestic and spillover news effects from the U.S., the Eurozone and China**

Suk-Joong Kim <sup>a</sup>, Leith Salem <sup>a</sup>, Eliza Wu <sup>b, #</sup>

<sup>a</sup> Discipline of Finance, University of Sydney Business School, The University of Sydney, Sydney, NSW 2006, Australia.

<sup>b</sup> University of Technology Sydney, UTS Business School, Ultimo NSW 2007, Australia.

**Abstract**

The impact of domestic and spillover macroeconomic news from the U.S., the Eurozone and China on national sovereign credit default swap (CDS) spreads and spread volatility are examined over a recent period of financial instability from November 2007 to March 2012. We find that better than expected (i.e. good) news tend to reduce sovereign CDS spreads, whilst worse than expected (i.e. bad) news increases spreads. News from the three major economies have significant spillover effects on other national sovereign CDS markets but the volatility responses to domestic news and foreign news from the major economies differ. CDS spread volatility increases in response to all domestic news and good news tends to exert relatively stronger effects than bad news. In contrast, good news from the major economies is market calming and consistently reduces spread volatility and they are also economically more important than bad news. Bad news from China and the Eurozone generally increase volatility in other sovereign CDS markets but bad news from the U.S. has been calming for other sovereign CDS markets in the extended crisis period from 2007-2012. Our results suggest that market participants in the market for sovereign credit protection pay more attention to good news than bad news both at home and from the major economies in times of financial instability.

**Keywords:** Sovereign credit default swap spreads, Sovereign risk, Macroeconomic news spillovers

**JEL:** G1, F3

<sup>#</sup> Corresponding author. Eliza Wu, Tel. +61295143905, Fax. +61295147722, Email: [eliza.wu@uts.edu.au](mailto:eliza.wu@uts.edu.au); Kim's email: [sukjoong.kim@sydney.edu.au](mailto:sukjoong.kim@sydney.edu.au); Salem's email: [leith.salem@gmail.com](mailto:leith.salem@gmail.com). We wish to thank conference participants at the 2013 Conference on Asia-Pacific Financial Markets (CAFPM), 2014 Eastern Finance Association meeting as well as two anonymous reviewers and the Editor for providing constructive suggestions which have helped to improve this paper. All errors remain our own.

## **1. Introduction**

The sovereign credit default swap (CDS) markets have received considerable attention since the onset of the recent European sovereign debt crisis. The benefits of sovereign CDS's for investors and speculators were verified when the restructuring of Greece's outstanding sovereign debts in March 2012 triggered an estimated US\$2.5 billion payout to the holders of Greek sovereign CDS contracts. The rapid development of sovereign CDS markets spurred by recent financial crises and the demand for credit protection has fuelled much uncertainty and speculation on the likelihood of other sovereign defaults. Given that sovereign default risk is mainly determined by the macroeconomic soundness of sovereign obligors, macroeconomic news should affect changes in aggregate perceptions of sovereign credit risks and be reflected in daily changes in CDS spreads and spread volatility.

In this study, we focus on the following three research questions to improve the current understanding on what moves sovereign CDS market spreads and the volatility of spread changes. First, to what extent do sovereign CDS markets respond to the release of macroeconomic news? Second, do better than expected news elicit different responses compared to worse than expected news in the market for sovereign credit protection? Third, how do national sovereign CDS markets respond to news spillovers from major economies in the world?

To address these issues we firstly, ascertain the presence of macroeconomic news effects in a global sample of nineteen developed and emerging countries' sovereign CDS markets from November 2007 to March 2012 and investigate the potential asymmetric effects of good news and bad news on the pricing and volatility of national sovereign CDS spreads. Second, we examine the extent of international spillover news effects from China, the U.S. and the Eurozone to other sovereign CDS markets using EGARCH-X models that can accommodate macroeconomic news as exogenous determinants of CDS spread changes and their conditional volatilities.

The key findings from this study are that both domestic and foreign macroeconomic news exhibit statistically significant and asymmetric impacts on daily sovereign CDS spreads. Consistent with expectations, good (bad) news lowers (raises) spreads. We also find new evidence that both good and bad macroeconomic news from the major economies is important for restoring financial stability in the market for sovereign credit protection in times of financial instability. This result is consistent with the behavioral analyses of Conrad et al. (2002) and Beber and Brandt (2010) who find that during recessions, bad news can actually have positive effects when the result is not worse than what was initially feared. In contrast, we find that both good and bad domestic news tends to create uncertainty and increases CDS spread volatility.

This study complements the extant macroeconomic news literature (Andersen et al., 2003, 2007, Balduzzi et al., 2001) yet extends current knowledge by providing new evidence on the impact of macroeconomic news in the market for sovereign credit protection in times of financial turmoil. Our study is most closely related to the work of Beetsma et al. (2013) on news impacts on European sovereign yield spreads during the recent debt crisis. However, we differentiate our work by examining foreign macroeconomic news spillovers from the three major economies of China, the Eurozone and the U.S. to improve the current understanding on information transmission across international sovereign credit markets. This comprehensive analysis is warranted given the increasing interconnectedness observed in international sovereign credit markets in recent years (Longstaff et al., 2011, Ang and Longstaff, 2013). Macroeconomic developments in major economies like the U.S., the Eurozone and China have significant ramifications for both regional and global economic prosperity and thus should also affect other countries' sovereign credit risk.

A sovereign CDS contract is effectively an insurance product against a default event on a debt instrument issued by a sovereign obligor. A sovereign CDS is sold by insurance providers (typically investment banks and hedge funds) to insure against potential default on the underlying

sovereign debt in exchange for an annual premium amount in basis points (payable during the life of the CDS contract). In the event of a default on the underlying debt, the protection seller makes the default payment to the CDS holder. Thus, sovereign CDS spreads are pure forward-looking measures for sovereign credit risk so there exists a direct relationship between the CDS spread (or premium) and the ex-ante likelihood of sovereign default. In contrast, sovereign bond yields incorporate not only the compensation for expected sovereign default risk but also compensation for other components reflective of general market conditions (interest rates, changes in sovereign bond demand and supply, funding liquidity and so on). To the extent that sovereign CDS spreads represent market-based assessments on sovereign default risks, these will change at least on a daily basis in accordance with the market's varying perception on a sovereign's credit risk. It has been shown that sovereign CDS spreads respond quickly to sovereign credit rating changes assessed by international credit rating agencies that are known to rate 'through the cycle' (Ismailescu and Kazemi, 2010). In particular, the daily movements of CDS spreads should reflect changing market sentiments on the perceived riskiness of sovereign obligors as market participants react to new information releases. Scheduled macroeconomic announcements contain new information relating to a country's economic health that would directly influence a sovereign's fiscal position and its default probability. Therefore, the new information conveyed in macroeconomic announcements should immediately be priced into national sovereign CDS spreads if sovereign credit markets are efficient.

Yet, as there is no requirement for a CDS holder to hold any debt issued by the underlying reference entity, CDS contracts can be used for speculative purposes with speculators expecting future deteriorations in a sovereign's credit worthiness taking out a naked long position on the sovereign's CDS to bet on a sovereign default. 'Naked' trading in CDS markets received much

attention during the recent European sovereign debt crisis.<sup>1</sup> A popular view shared during the debt crisis was that naked CDS positions were potentially having destabilizing effects on financial markets as speculators traded in CDS contracts on the sovereign debt of some highly indebted European governments. Hence, our findings in this study have significant policy implications as we can assess the impact of potentially speculative CDS trading in response to macroeconomic news releases on CDS market stability.

The remainder of this paper is structured as follows. Section 2 provides a review of the related literature. Section 3 details the data used and the variable construction process. Section 4 examines the methodology used while Section 5 provides a discussion of the main results before conclusions are made in Section 6.

## **2. Related Literature**

Whilst there is a well-established literature on the determinants of CDS spreads, the literature is scant on information transmission within CDS markets. The impact of news releases on CDS pricing has to date only been examined via the impact of corporate earnings announcements on the corporate CDS market (Greatrex, 2009b). In a similar vein, Baum and Wan (2010) report that macroeconomic uncertainty can explain individual firm's CDS spreads in the U.S. and Marsh and Wagner (2012) find equity market returns lead CDS returns. Despite the literature on market efficiency affirming that new public information leads to financial market adjustments, there is little evidence on the impact of macroeconomic news flow on credit spread movements within national sovereign CDS markets. An investigation is warranted given the potentially destabilizing effects of sovereign defaults on other financial markets and the real economy.

---

<sup>1</sup> On 1 November 2012, a ban on naked positions came into effect within the European Union and trading volumes on European sovereign CDS contracts subsequently declined but our sample period stops in March 2012 before this regulatory change was implemented.

Our study relates to the extensive literature documenting how the flow of macroeconomic news impacts different types of financial markets. Andersen et al. (2003) examine the effects of macroeconomic news on exchange rates, whilst Balduzzi et al. (2001) find an asymmetric impact of macroeconomic news on the U.S. treasury bond market and Kim et al. (2004) document the broader effects on U.S. bond, stock and foreign exchange markets. Moreover, Andersen et al. (2007) and Gande and Parsley (2005) examine the impact of macroeconomic and rating news spillovers on international debt markets, respectively. In addition, the impact of macroeconomic news on return co-movements between different financial markets has also been studied (Brenner et al., 2009, Christiansen and Rinaldo, 2007). Furthermore, macroeconomic news is known to have impacts on higher return moments. For instance, Goeij and Marquering (2006) document the asymmetric impact of macroeconomic news on the volatility of bond returns.

The analysis on international macroeconomic news spillover effects in CDS markets is very limited to date. Despite the extensive literature on international market co-movements (for example, Karolyi and Stultz, 1996, and Bae and Karolyi, 1994) establishing that macroeconomic news, particularly from major economies such as the U.S. and Japan, have statistically significant spillover impacts on other markets, there has been a dearth of attention on the impacts of macroeconomic news from current major economies on sovereign credit markets. One exception is the European study by Beetsma et al. (2013) looking at the effect of macroeconomic news spillovers from individual peripheral Eurozone countries (namely, Greece, Ireland, Italy, Portugal and Spain - GIIPS) to each other and to non-GIIPS countries within Europe. They measure the news spillover effects on the interest rate spreads on national sovereign bonds but not sovereign CDS spreads which are deemed to be a more precise market-based measure of sovereign credit risk (Ang and Longstaff, 2013, Remolona et al., 2008). In a similar vein, Alsakka and ap Gwilym (2012) find that sovereign rating spillovers, increase the interdependencies across foreign exchange markets.

In this study, we reveal whether news from major economies have a significant impact on the price and volatility of individual countries' sovereign CDS markets. Hence, we contribute a better understanding on the degree of interdependencies in the international sovereign credit market. The release of macroeconomic news is likely to affect the risk premia demanded by market participants for bearing sovereign credit risk and hence, the borrowing costs for sovereign nations as highlighted by Delatte et al. (2012) and Beetsma et al. (2013). Moreover, macroeconomic news affects market uncertainty regarding future funding costs and longer term economic impacts for countries concerned. The focus on macroeconomic news impacts on sovereign CDS markets improves the current understanding on the real economic factors driving the pricing of sovereign default risk by financial market participants (see for example, Remolona et al., 2008, Hilscher and Nosbusch, 2010, Chiarella et al., 2015 amongst others).

Thus, our research not only complements but also deepens the extant literature on international information transmission across countries via examining the impact of macroeconomic news from regional economies, and the major super power economies of China, the Eurozone and the U.S. on the pricing and the volatility of national sovereign CDS spreads. Understanding the macroeconomic news spillover from these major economies is vital given that systemic sovereign credit risk levels have escalated in recent years and posed serious concerns for policy makers around the world.

### **3. Data and Summary Statistics**

#### *3.1 Sovereign CDS data*

We examine a global sample of nineteen countries that have active sovereign CDS markets with sufficient historical data. Our sample comprises 5 countries from the Asia-Pacific region (Australia, China, Indonesia, Japan and Korea), 10 countries from Europe, the Middle East and African regions (EMEA) (France, Germany, Greece, Italy, Portugal, Russia, Spain, South Africa,

Turkey and U.K.), and 4 countries from the Americas (Argentina, Brazil, Mexico and the US) for the period from 14 November 2007 to 31 March 2012. Daily sovereign CDS spreads were sourced from Thomson Reuters' Datastream. As local currency CDS spreads are not readily available for most countries, we analyze sovereign CDS spreads denominated in either the U.S. dollar or Euro except for the Japanese CDS spreads that are denominated in the Japanese Yen.<sup>2,3</sup>

We examine the sovereign CDS data for a range of maturities - for 1, 5 and 10 year tenors, however, we only report the results for the 5 year maturity. This is consistent with the standard practice of focusing on the 5-year maturity due to that maturity being the most liquid and active in the CDS market (Delatte et al., 2011, Pan and Singleton, 2008).<sup>4</sup> Figure 1 depicts the sovereign CDS spreads of some of the countries in our sample. For Argentinean sovereign CDS spreads the peaks were reached during the recent Global Financial Crisis (GFC) followed by a period of rapid decline before levels were elevated again towards the beginning of 2011. This pattern is also exhibited by the vast majority of other emerging market sovereigns (Brazil, Mexico, Indonesia, Russia, South Africa, Korea and Turkey).<sup>5</sup> In the developed country group, Australia also had sovereign CDS spreads that became more volatile during the European Debt Crisis. German CDS spreads have stayed at relatively low levels but still show more volatility since the GFC. Italian and French CDS spreads increased substantially towards the end of the sample. The most extreme case is that of Greece as their CDS spreads reached over 30,000 basis points towards the end of the sample.

---

<sup>2</sup> The USD is the denominating currency for all the Asia Pacific countries (except for Japan which has the JPY denomination) and all the Americas (except for Brazil where the denomination is the Euro). The Euro is the denominating currency for all the EMEA countries.

<sup>3</sup> As the sovereign CDS spreads are based on major currencies instead of local currencies, there is a possibility of both direct and indirect impacts of macroeconomic news showing up on the CDS spreads. The indirect effect is due to the macroeconomic news influencing the relevant exchange rate between the local currency and the base currencies of the CDS and then the exchange rate changes in turn having an impact on the CDS spreads. This indirect effect may dilute the direct link between the CDS spreads and macroeconomic news.

<sup>4</sup> In order to save on space, we report only the 5-year CDS estimations. The qualitative results are similar across all maturities examined. The estimation results for other maturities are available upon request from the corresponding author.

<sup>5</sup> Not all countries are shown in Figure 1 to save on space. The plots for other countries are available upon request.



Table 1 reports the descriptive statistics of the daily changes in 5-year sovereign CDS spreads. Panel A shows the summary statistics for the CDS spreads in levels. The average of spreads is highest for Greece (1565bps) and lowest for Germany (32.5bps) consistent with perceived sovereign credit risks during the sample period. Greece also has the largest unconditional variance whereas the US has the lowest. There is a significant positive skewness in all countries except for Japan and excess kurtosis is significant in all cases except for France and Germany, and there is non-normality for all countries. The Box-Ljung tests for white noise is rejected in all cases for CDS spreads and squared CDS spreads (Q-test and Q<sup>2</sup>-test). Finally, the CDS spreads are shown to be non-stationary for all countries except for Russia and Turkey. Panel B reports the summary statistics of the daily changes in the CDS spreads. There are still significant levels of skewness, kurtosis and non-normality. In addition, serial correlation is found in the first and second moments of daily changes in all cases, except for the second moment for China and Japan. The spread changes are now stationary in all cases suggesting that the CDS spreads in levels are I(1)s. The summary statistics thus suggest that the CDS spreads need to be modelled in daily changes and an EGARCH model is required to capture the volatility clustering and fat-tailed characteristics displayed in the CDS changes and potential asymmetries in news shocks.

### *3.2 Macroeconomic announcement news*

We examine scheduled macroeconomic announcements from each of the countries in our sample. The actual and market consensus expectations for each announcement and for all countries are obtained from Bloomberg.<sup>6</sup> As Bloomberg's macroeconomic announcement data are given in U.S. Eastern Standard Time (EST) they are first converted to local time for each country. In addition, we apply appropriate lag structures to account for the difference in business hours between

---

<sup>6</sup> The Bloomberg macroeconomic news data was cross-checked with alternative sources such as FXstreet.com and Capital IQ to verify its accuracy.

countries in the sample and the major economies from which we investigate news spillovers. For instance, for the Asia-Pacific sovereigns, news from the U.S. are lagged by one day. Similar adjustments are made for all spillover news announcements from the major economies to account for non-synchronous trading hours across countries.

The selection and availability of different types of macroeconomic announcements and consensus forecasts vary widely across countries as reported by Bloomberg. The news events that are of greatest importance for developed nations such as Germany and the United States are established in the literature (e.g. Andersen et al., 2007). However, less is known about the most important types of news in emerging markets. The macroeconomic events reported in Bloomberg are given an index value ranging from 0 - 100 in their Relevance Index, and serves as a subjective assessment on the relevance of the news to financial market participants. For example, GDP news events are typically higher on the relevance index range, whereas events such as speeches with no survey forecasts will rank lower. In general, a wider range of scheduled announcements are available for developed economies than emerging countries. However, key macroeconomic variables, such as inflation, GDP growth rate, unemployment numbers, and so on, are consistently available across countries. There are also country-specific variables that are of significant importance such as Japan's Tankan Manufacturing Index and news relating to Fixed Asset Investment from China. In order to ensure consistency across countries, we concentrate on the most important announcements relating to economic activity in each country. These are GDP growth rate, production indicators (e.g. production index, purchasing managers' index, non-farm payrolls for the US, Tankan index for Japan), retail sales growth, external balance (either trade balance or current account balance) and unemployment rate. The details on the selected types of macroeconomic announcements are summarized in Table 2.

We first construct standardized news (the unexpected component in the macroeconomic announcements) at the daily frequency following the approach of Balduzzi et al. (2001) and

Andersen et al. (2007). First, if the macroeconomic variable is already expressed in a percentage form (e.g. rate of change in Unemployment rate, GDP growth rate, etc.), we take an absolute difference between the announced (actual) figures and the corresponding market consensus figures (forecasts). For those variables that are in numbers or in monetary terms (e.g., US nonfarm payrolls in US\$, current account balance in US\$, change in employment numbers, etc.) we take a log difference between the actual values and the forecasts. In this way, regardless of the type of news, the unexpected component is expressed consistently as a percentage difference between the actual and the forecasted values. Second, we standardize all macroeconomic news by computing a standard deviation of each news variable over the sample period and then dividing individual news observations by the standard deviation. The standardization avoids any biases caused by the magnitude of the variables (Balduzzi et al., 2001, Andersen et al., 2003) and facilitates comparability across different types of news. Each news variable then takes either a value of zero or the difference between actual and median market expectations.

We then construct various news indexes. First we consider separately better than expected (good news) and worse than expected (bad news) announcements in each country and major economy. The literature suggests that higher than expected values announced for economic activity variables and lower than expected inflation and unemployment rates constitute good news, and the opposite is true for bad news (e.g. Bae and Karolyi, 1994, Kim, 2003, Vrugt, 2009). In addition, the roles of good and bad news can be time varying (Andersen, et al., 2003). For example, a higher than expected inflation rate would be considered bad news during boom periods especially for inflation targeting countries, but it would be considered a sign of economic recovery during recessions, hence good news. Consistent with this, Andersen et al. (2003) find the impact of news on equity markets depend on the stage of the business cycle. Our sample period is from November 2007 to March 2012 and includes both the International Financial Crisis and the

Eurozone Debt Crisis periods, and hence covers periods of economic downturn.<sup>7</sup> Hence, the definitions of good and bad news are fairly stable for all countries during the sample period. On the other hand, interpretation of some news might be different across countries. For example, higher than expected inflation is usually considered as bad news, but the opposite would be the case for deflationary economies such as Japan. For this reason we exclude inflation related news in this study in order to concentrate on macroeconomic news that would tend to be interpreted in a similar way during the sample period across all sample countries. Thus the good news for each country contains higher than expected GDP growth, PMI numbers, current account or trade balances, retail sales growth, and so on and lower than expected unemployment rates. The bad news for each country is defined in the opposite way.

To construct good and bad news indexes, we sum individual standardized daily news variables (zero for non-news days and the standardized magnitude of the news on news days) for each country and then for each region. Specifically, we first take the absolute values of all individual good news announcements for each country (higher than expected economic activity variables and lower than expected unemployment rate) then sum all the good news values to construct the country good news index. On the days of multiple good news announcements we use the average value of all good news for those days.<sup>8</sup> Bad news index for each country is constructed in a similar way for worse than expected announcements.<sup>9</sup>

---

<sup>7</sup> NBER (<http://www.nber.org/cycles.html>) determined that the most recent downturn started in December 2007 and the trough was reached in June 2009.

<sup>8</sup> An alternative approach is to sum up all the news in absolute values as in Jiang, Konstantinidi and Skiadopoulos (2012). They sum the absolute values of U.S. and Eurozone news to construct their aggregate news measure. We reconstructed the news indices using sums instead of averages and found qualitatively similar regression results. This is not surprising as multiple news days are infrequent. Out of 19 countries 12 countries have multiple news days on less than 5% of all total news days, another 5 countries have between 5 and 10% and only 2 countries have more than 10% of multiple news days (Indonesia – 18%, Russia – 27%).

<sup>9</sup> As a robustness check, we also used a principal component analysis to extract the first principal component among all the Good (Bad) news for each country. The extracted principal component series is then used as the Good (Bad) news index. The estimation results are reported in Table 8 in a summary form for brevity. Our key results are robust to this alternative method of constructing the news measures. We thank an anonymous referee for this suggestion.

### *3.3 Control variables*

The control variables for explaining daily CDS spread changes are drawn from the literature (e.g. Greatrex, 2009a, Norden and Weber, 2009, and Aktug et al., 2011). They include daily changes/returns of each country's stock market index, long- (ten-year government bond yields) and short- (LIBOR) term national interest rates, exchange rates (against either the Euro or the U.S. Dollar). In instances where the historical long-term bond yields are not available due to low levels of bond market development, the implied yields (calculated assuming zero coupons) from the J.P. Morgan Emerging Market Bond Index (EMBI) are used instead. EMBI tracks the total returns of external debt across all emerging markets and is commonly used to study emerging market country spreads (Uribe and Yue, 2006).

We also include changes in sovereign credit ratings and outlook revisions from Standard and Poors (S&P) as variables of interest in our analyses as they are watched carefully in financial markets. A change in the credit outlook or a change in the sovereign credit rating is indicative of the revised probability of default for a sovereign obligor consistent with the prior analysis in Gande and Parsley (2005) and Ismailescu and Kazemi (2010). We use sovereign credit assessments provided by S&P as they are documented to be more active and lead other agencies in re-rating sovereign obligors and their assessments elicit the greatest impact in debt markets (Gande and Parsley, 2005). Furthermore, Riesen and von Maltzan (1999) find that the sovereign rating changes made by S&P are the least anticipated by financial markets compared to those from other credit rating agencies. Consistent with other studies like Gande and Parsley (2005), the ratings and outlooks data from S&P have been converted into the numerical metric described below, based on a discrete scale where the AAA rating is given the highest score of 20 and the rating of D/SD (Default/Selective Default) is allocated a score of 0. Each ordinal ratings category varies by a score of 1.

Outlooks have also been transformed consistent with the approach of Afonso et al. (2012) with a value of 1 assigned to a positive outlook given for a country, a score of -1 when a negative outlook is given for a country, and a value of 0 when the outlook is neutral. Figure 2 highlights the outlook and ratings revisions given by S&P for Greece, Italy, Spain and Portugal where there have been multiple downgrades to both sovereign ratings and outlooks during the sample. Not surprisingly, the European countries in our sample have been the most actively re-rated during the period of study. Furthermore, it can be seen that outlook revisions tend to precede ratings revisions, corroborating with Kaminsky and Schmukler's (2002) observations surrounding earlier crisis periods.

#### 4. Empirical Methodology

##### 4.1 EGARCH models

We employ EGARCH models to capture the dynamics of daily changes in sovereign CDS spreads as they exhibit characteristics typical of daily asset returns, i.e. serial correlations of first and second moments, volatility clustering and asymmetry. The literature has reported that EGARCH models are suitable in explaining volatility asymmetry and is suitable in this case because it allows negative volatility coefficients (Booth et al., 1997, Braun et al., 1995). Our baseline EGARCH model is shown in equations (1a) and (1b) below:

$$\Delta CDS_t = \alpha_c + \alpha_{Lag} \Delta CDS_{t-1} + \sum_{k=1}^l \alpha^k ControlVariables_t^k + \varepsilon_t \quad (1a)$$

$$\ln h_t = \beta + \beta_h \ln h_{t-1} + \beta_{\varepsilon 1} \frac{\varepsilon_{t-1}}{\sqrt{h_{t-1}}} + \beta_{\varepsilon 2} \frac{|\varepsilon_{t-1}|}{\sqrt{h_{t-1}}} \quad (1b)$$

Where

$\Delta CDS_t$  = Daily changes in 5-year sovereign CDS spreads for each country from day  $t-1$  to  $t$ .

$ControlVariables_t^k$  =  $k$  daily variables included to control for other market influences on changes in sovereign CDS spreads. These are first differences in ten-year sovereign bond yields and short-term interest rates, log changes in VIX, changes in S&P's sovereign rating and outlook, returns of commodity

price indices, returns of national stock market indices and exchange rate returns of each country against either the Euro or the US dollar (USD).

To investigate whether sovereign CDS markets respond to the macroeconomic news from their country and from major economic regions of the U.S., the Eurozone and China, we extend the base model by including good and bad news from the U.S, Eurozone and China as well as own country news indexes as shown in equations (2a) and (2b).

$$\Delta CDS_t = \text{RHS of (1a)} + \sum_{j=1}^q \alpha_j \cdot \text{GoodNewsIndex}_t^j + \sum_{j=1}^q \alpha_j \cdot \text{BadNewsIndex}_t^j \quad (2a)$$

$$\ln h_t = \text{RHS of (1b)} + \sum_{j=1}^q \beta_j \cdot \text{GoodNewsIndex}_t^j + \sum_{j=1}^q \beta_j \cdot \text{BadNewsIndex}_t^j \quad (2b)$$

Where

$\text{GoodNewsIndex}_t^j$  and  $\text{BadNewsIndex}_t^j$  = Better than expected and worse than expected macroeconomic news indexes for  $j$  = Domestic country, the U.S., the Eurozone and China.

The importance of news from major economies is well documented in the macroeconomic news impact literature. For example, Andersen et al. (2003) focus on U.S. and German economic news shocks and Karolyi and Stulz (1996) examine co-movements between U.S. and Japanese stock markets. However, alongside this, countries are most heavily integrated with their own geographic and economic zones as shown in Alsakka and ap Gwilym (2012), Beetsma et al. (2013) and Frijns et al. (2012). This is because trade flows in general, are heavily concentrated in a particular geographic region, so we expect sample countries to be more significantly affected by economic shocks from a major economy that is in the same region.

## 5. Empirical Results

### 5.1 Baseline EGARCH estimations

Table 3 reports the baseline EGARCH estimations of equations (1a) and (1b) with the news variables. In the mean equations, the first lag of sovereign CDS spread changes is significant in most markets. In the volatility equations, the asymmetric component is highly significant at the 1% level for all countries. Furthermore, the lagged conditional variance term is significant across all countries indicating a high degree of persistence in volatility. Overall, these results support the use of EGARCH models for capturing daily sovereign CDS spread changes and its conditional variance.<sup>10</sup>

The control variables across all countries show some degree of significance. The returns of commodity and stock price indices have an overwhelmingly significant negative influence in almost all countries suggesting that improvements in global and domestic economic conditions work to reduce sovereign CDS spreads. On the other hand, daily log changes in the VIX increases CDS spreads for all countries except Spain. Overall, the significant relationships that we find for all control variables and sovereign CDS spreads corroborate previous studies linking the CDS market with other financial markets (for example, Ericsson et al., 2009, Grammatikos and Vermuelen, 2012, Greatrex, 2009a, Montes and Tiberto, 2012). This indicates that our selection of control variables is appropriate for sovereign CDS spread changes and its volatility.

---

<sup>10</sup> In addition, Engle and Ng (E-N) (1993) sign tests on underlying sovereign CDS spreads and the square of those series also support the use of the EGARCH models.



## 5.2 Domestic news effects within sovereign CDS markets

Tables 4 to 6 present the EGARCH estimation results for equations (2a) and (2b) for the EMEA, the Asia-Pacific and the Americas region, respectively. Table 7 summarizes the number of significant domestic news coefficients detected within each region.<sup>11</sup>

The responses to own country news are reported in the first two rows in the conditional mean and variance sections in Tables 4-6, and the signs of the estimated coefficients are consistent with *a priori* expectations. There are clear and asymmetric responses in mean CDS spreads to good and bad macroeconomic news announcements. Good news from the sovereign obligor's own country consistently reduces sovereign CDS spreads (as evidenced by the total of 11 significantly negative coefficients across the EMEA, Asia-Pacific and Americas region, respectively). On the other hand, bad news increases CDS spreads in all cases where it is significant (a total of 8 significantly positive coefficients in the EMEA, Asia-Pacific and the Americas). Consistent with prior studies on macroeconomic news, bad domestic news has a relatively stronger effect on mean spreads in the EMEA and Asia-Pacific regions but interestingly not in the Americas suggesting that good macroeconomic news from the recovering US economy during our sample period was more closely watched by market participants in pricing sovereign credit protection. For instance, a one percentage positive surprise in macroeconomic news within Mexico reduced its sovereign CDS spreads by 0.0046 bps whilst a same size negative surprise increased spreads by only 0.0017 bps.<sup>12</sup>

Market participants in national sovereign CDS markets react to both good and bad domestic macroeconomic news. Sovereign CDS spread volatilities generally increase in response to all domestic macroeconomic news (for good news there are 9 instances in which volatility

---

<sup>11</sup> We also estimated the EGARCH models with individual macroeconomic news types for each country in addition to the aggregate national news indexes. We find that the types of domestic macroeconomic news that are significant vary considerably across the countries in the sample. To save on space we do not report the individual news estimation results. Interested readers may obtain these results from the authors upon request.

<sup>12</sup> As our macroeconomic news variables have been standardised, the size of 1 standard deviation would be 1.

increases and 4 when volatility declines and for bad news there are 8 against 4 respectively). This result is consistent with volatility increases in financial markets following public news releases as the new information is traded on and becomes quickly impounded into market prices. Interestingly, we observe that good domestic news tend to exert a relatively stronger impact on conditional volatility than bad news in the market for sovereign credit protection but this is not always the case suggesting that the asymmetry in volatility impacts is different in sovereign CDS markets compared to other asset markets where bad news is normally more dominant (Andersen et al., 2003, 2007). It is worth noting that our sample period coincides with a period marked by a high incidence of bank failures and hence, systemic banking crises (Chaudron and de Haan, 2014 and Laeven and Valencia, 2013). In these times, there is a high likelihood that national governments will have to bail out their troubled banks and further deteriorations in the health of the country's banking sector will enhance sovereign default risk constituting the so called 'sovereign-bank nexus' described in Acharya et al. (2014). Hence, any good macroeconomic news that reduces the severity of banking crises would be welcomed by market participants and more significantly reflected in sovereign CDS spreads. Overall, our results suggest that market participants pay closer attention to good domestic news in sovereign CDS markets when there is much market uncertainty and pessimism corroborating with the behavioral bias towards good news in recessions uncovered by Beber and Brandt (2010).

### *5.3 Spillover news effects from major economies in sovereign CDS markets*

The news spillover effects from China, the Eurozone and the U.S. are reported in Tables 4 to 6 for sovereign CDS markets from the EMEA region, the Asia- Pacific and the Americas, respectively. They are then summarized in Table 7. We first discuss the general news spillover effects across

regions from these economic superpowers before focusing on the specific impacts of their macroeconomic news.

### *5.3.1 News spillover effects – General reactions across regions*

News spillover effects are consistent with expectations as good news from major economies (China, the U.S. and Eurozone) tends to reduce the mean sovereign CDS spreads of most countries (a total of 27 significant negative news coefficients vs 6 positive ones shown in the last two rows in Table 7). The bad news results are also consistent with expectations. Bad news from major economies increased domestic CDS spreads (a total of 17 significant positive news coefficients vs. 7 significant negative ones). These strongly consistent news spillover results are indicative of the growing global integration of sovereign credit markets as market participants are increasingly pricing global information into national sovereign CDS spreads, corroborating with the significant commonality in sovereign CDS spreads uncovered by Longstaff et al. (2011), Dieckmann and Plank (2012) and others. Bad news flowing from the major economic zones are likely to lead to a reduction in trade flows and consequently lower the national income for a weaker sovereign. Naturally, this leads to higher perceived default risks.

It can also be seen that international news spillovers have a significant impact on the volatility of national sovereign CDS spreads. The spillover of good news from major economies overwhelmingly reduces CDS spread volatility (32 volatility reductions against 7 increases as shown in the bottom of Table 7). Better than expected news for the major economies reduces fears concerning global economic uncertainty and this potentially works to calm sovereign credit markets. On the other hand, bad news tends to increase the levels of volatility in sovereign CDS markets (23 positive coefficients vs 18 negatives, in the last two columns in Table 7). This suggests that bad news creates additional uncertainty for market participants and this works to heighten

volatility via the anticipation of higher sovereign default risks when global economic outlook is weakened.

### *5.3.2 Spillovers news effects from China*

There are strong overall asymmetric news spillover effects from China. Good news from China lowers sovereign CDS spreads in other countries while bad news raises spreads. Interestingly, the asymmetric effect is strongest in the EMEA countries where 9 out of 10 countries responded to good news and 4 countries reacted to bad news from China. In the Americas, good news from China lowers spreads for Brazil and the US, and increases Mexico's spreads. However, none of the countries in the Americas region responded to China's bad news. In the Asia-Pacific region, bad news spillover effects from China are confined to Indonesia and the good news spillover effects are limited to Japan. The economic impact of bad news from China is also economically more important across European countries as a 1 percentage negative surprise in Chinese macroeconomic data increases Indonesia's sovereign CDS spreads by 0.0055 basis points on the same day but increases spreads for Germany, Portugal and Russia by 0.0095, 0.0093 and 0.0066 basis points respectively. Bad news from China has an economically stronger effect than good news on European sovereigns but good news has similar economic impacts across sovereigns in the Americas and Europe and is statistically stronger than bad news. Overall, the spillover effects from China's good and bad macroeconomic news to all major regions suggest that economic conditions in China have become important barometers for the global economy and its macroeconomic news effects are felt primarily across Europe and within the Asia-pacific.

The volatility responses to macroeconomic news from China are also asymmetric. There is a clear and significant volatility reduction effect coming from good news announcements suggesting that better than expected Chinese economic conditions reduce the level of uncertainty in international sovereign credit markets. This market calming effect is not surprising given the

degree of information opacity in the Chinese economy. Bad news, on the other hand, generally raises spread volatility in the EMEA and the Asia-Pacific countries, but still calms sovereign credit markets in the Americas. This unique response suggests that over the sample period, countries within the Americas were in such an uncertain state that any news coming out of China was interpreted as good news.

### *5.3.3 News spillover effects from the Eurozone*

The effects of good news from the Eurozone are both statistically and economically significant and also consistent with expectations. Good news lowers CDS spreads in 8 countries (with a one percentage positive surprise reducing spreads anywhere from 0.0015 bps in Turkey to 0.0036 bps in Portugal) and also reduces conditional volatility in 11 countries (with the greatest reduction of 0.189 bps experienced in France).

Strikingly, bad news from the Eurozone also reduces mean CDS spreads across all regions but the largest spread decline can be observed for German sovereign CDS spreads (0.0064 bps from a one percentage negative surprise in Eurozone macroeconomic news). Moreover, bad news increases volatility in most countries indicative of active trading in response to the macroeconomic news releases. Consistent with our expectations, on average, the economic impact of bad news from the Eurozone is relatively stronger within the EMEA region on both the mean and volatility of daily CDS spread changes.

The recent sample period has been marked by high levels of speculation with the European Debt Crisis (EDC) and the possibility that Greece might be forced to exit the European Monetary Union. Hence, our empirical results indicate that all news coming from the Eurozone has been carefully watched around the world. Good news from the Eurozone has evidently reduced this fear (particularly within the EMEA region) as it defuses doubts of the capacity of major Eurozone countries to rescue Greece and other troubled peripheral countries. To some extent, even bad news

from the Eurozone during the EDC has assured market participants that things were really not that bad and worked to reduce other countries' CDS spreads consistent with the bias documented by Conrad et al. (2002) and Beber and Brandt (2010) for bad news in bad times. Corroborating with the particularly strong effect on the EMEA region, Beetsma et al. (2013) found strong macroeconomic spillover effects from the peripheral European nations to the other Eurozone countries' sovereign bond yield spreads. Consistent with the findings of Frijns et al. (2012), our results also indicate that countries tend to be more integrated with other countries in proximate geographic regions experiencing similar political issues.

#### *5.3.4 News spillover effects from the U.S.*

Macroeconomic news from the U.S. generally stimulated reactions in the expected direction across all regions – good (bad) news lowers (increases) spreads. Good news lowers the spreads in all five Asia-Pacific countries suggesting that the sovereign risk in this region is strongly tied to the economic conditions of the US. This is consistent with the view that improving U.S. economic conditions imply a better outlook for the export oriented countries in the Asia-Pacific, and helps to lower their perceived sovereign credit risks. On the other hand, there is a mixed response from the EMEA countries where there are both significant positive and negative coefficients. The higher spreads are found for Italy, Portugal and Turkey, whereas lower spreads are detected for France, Germany and South Africa. This suggests that good news from the U.S. is also good news for high credit quality sovereigns like France and Germany whereas it is interpreted as bad news for lower credit quality sovereigns that are potentially more dependent on the US for trade. Bad news from the US has an unequivocal influence on increasing spreads in all cases where the news coefficient is significant and the adverse spillover effects are greatest for Australia and Russia (a one percentage negative surprise leads to a 0.0074 and 0.0036 increase in spreads respectively).

Interestingly, US macroeconomic news tends to reduce other countries' sovereign CDS spread volatility. The most prominent case is the EMEA where 7 and 6 countries show a significant volatility reduction in response to good and bad news from the US, respectively. The asymmetry is unconventional in that good news had an economically stronger impact than bad news and reduced spread volatility the most in France and Germany (with a one percentage positive surprise in US macroeconomic data reducing volatility by 0.329 and 0.330 bps respectively). We conjecture that during the sample period, due to higher levels of uncertainty in the U.S. and global financial system, the release of any macroeconomic news injected much needed information regarding the future course of monetary policy actions by the US Federal Reserve, and calmed sovereign credit markets internationally but especially in Europe. This finding is indicative of the importance and global reach of the US's economic performance, consistent with Ozatay et al.'s (2009) finding that the US economy has significant effects on debt markets. This is also consistent with the recent evidence of significant news effects from the U.S. in foreign stock markets (Singh, Nejadmalayeri and Lucey, 2013) and jointly in foreign exchange and stock markets in the U.S. and in Japan (Mun, 2012).

In sum, the foreign news spillovers from the three major economies point to a high degree of financial market integration in sovereign CDS markets consistent with Longstaff et al.'s (2011) and Dieckmann and Plank's (2012) finding of significant commonalities in sovereign CDS spreads and the influence of common global risk factors that are related to the U.S' financial performance. Whilst the impacts of news vary in size and magnitude across regions, we reveal that there are significant news spillover effects from all three major economies. This study extends the behavioral aspect of the news impact literature (Boyd et al., 2005, Conrad et al., 2002, and Beber and Brandt, 2010). Our results affirm that there are additional informational effects behind macroeconomic news – during periods of financial turmoil, even bad macroeconomic news can

be stabilizing in markets for sovereign credit protection and good news becomes more valued by market participants.<sup>13</sup>

## 6. Conclusions

This paper investigates the impacts of domestic and international macroeconomic news from the U.S., the Eurozone and China on a global sample of national sovereign CDS spread changes and volatilities. The main research questions addressed are: First, to what extent do sovereign CDS markets respond to the release of macroeconomic news? Second, do better than expected news elicit different responses compared to worse than expected news in the market for sovereign credit protection? Third, how do national sovereign CDS markets respond to news spillovers from major economies in the world?

We find that macroeconomic news have economically and statistically significant impacts within sovereign credit markets. The results of this study establish that across both emerging and developed markets, bad macroeconomic news typically yields an increase in sovereign CDS spreads whilst good macroeconomic news reduces spreads. Good macroeconomic news however, have exerted relatively stronger effects in recent years marked by financial turmoil. We find that national sovereign credit markets are highly sensitive to macroeconomic developments not only in their own but also in the three major economies of the U.S., Eurozone and China. Furthermore, we reveal that macroeconomic news also impacts on volatility, reflecting that macroeconomic news shocks have informational value and the ability to create and/ or resolve uncertainty regarding the likelihood of a sovereign default event.

---

<sup>13</sup> In Table 8, we report the summary panel regression results across the three geographical regions using the Good and Bad news indexes generated from the first principal components of each news type. The results are comparable to the ones reported in Table 7. That is, there is evidence of more significant CDS reductions to good domestic and spillover news and more significant CDS increases to bad news announcements. However, the responses to domestic news and good news spillovers are less strong compared to the estimations using the average standardized news indexes.



Our findings are important for both governments and market practitioners alike. We provide new information to help sovereign CDS traders and policymakers to gain a greater understanding on how macroeconomic news shocks impact both sovereign CDS spreads and its variability over time. Furthermore, the examination of international macroeconomic news spillovers in sovereign credit markets provides market participants with additional knowledge on the international transmission of information across these markets. As such, our findings can assist national policy makers to better understand how CDS markets react to different types of macroeconomic news releases to enable better coordination of macroeconomic policies around the world. To the extent that naked CDS trading was possible, we do not find evidence to suggest that market participants traded on macroeconomic news releases to destabilize sovereign CDS markets.

Sovereign CDS contracts have only become actively traded since the mid-2000s as the need to have protection against sovereign defaults became more widespread. As a longer time history becomes available, future research may focus on measuring the speed of macroeconomic news impacts as well as business cycle effects. For instance, the news impacts from major economies during boom and bust periods may then be compared. We leave these investigations for future research in this area.

## References

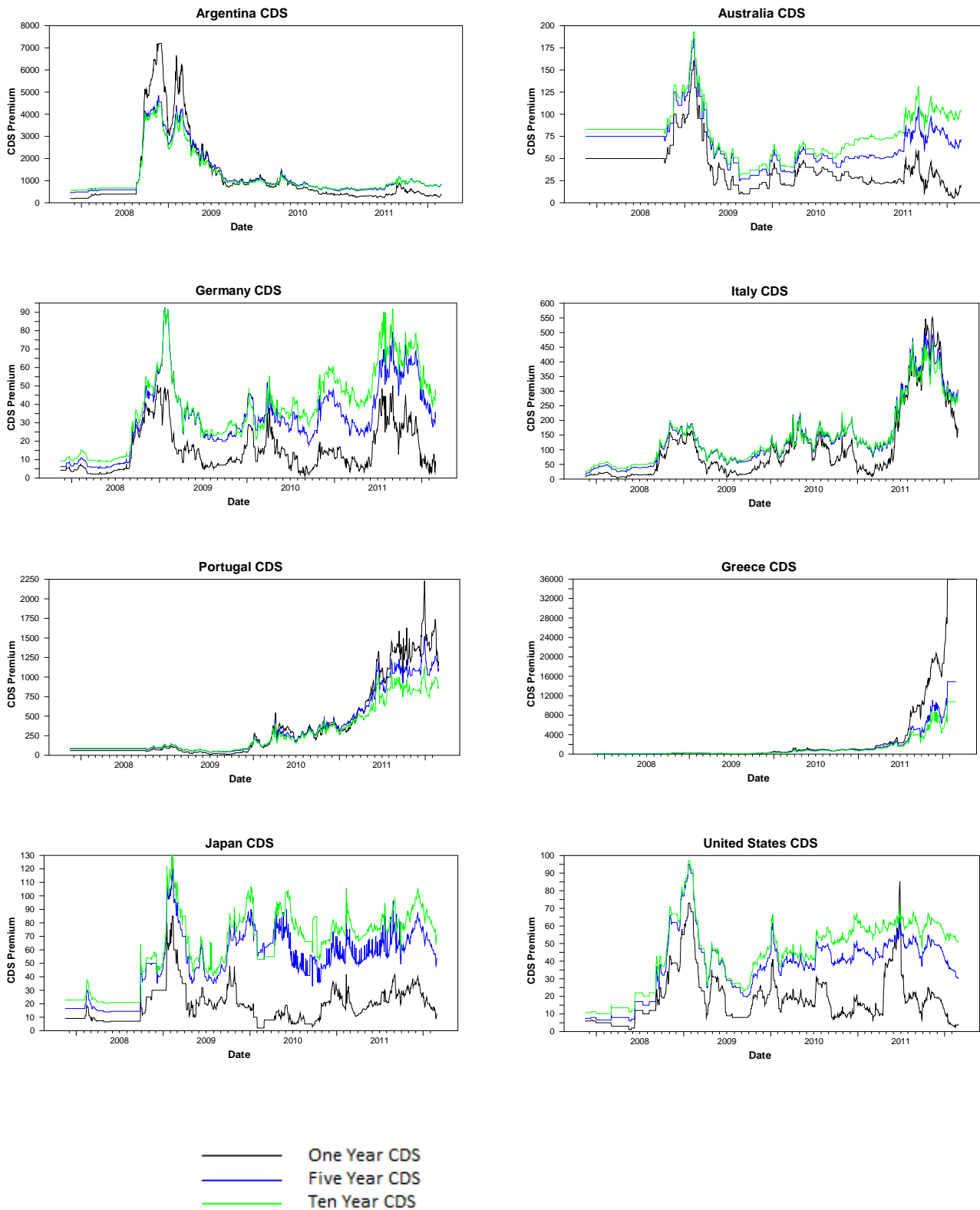
- Acharya, V., Drechsler, I., Schnabl, P., 2014. A Pyrrhic Victory? - Bank Bailouts and Sovereign Credit Risk, *Journal of Finance* 69, 2689–2739.
- Afonso, A., Furceri, D., Gomes, P., 2012. Sovereign credit ratings and financial markets linkages: Application to European data. *Journal of International Money and Finance*, 31, 606-638.
- Aktug, R.E., Vasconcellos, G., Bae, Y., 2011. The dynamics of sovereign credit default swap and bond markets: empirical evidence from the 2001 to 2007 period. *Applied Economics Letters* 19, 251-259.
- Alsakka, R., ap Gwilym, O., 2012. Foreign exchange market reactions to sovereign credit news. *Journal of International Money and Finance* 31, 845-864.
- Andersen, T.G., Bollerslev, T., Diebold, F.X., Vega, C., 2003. Micro effects of macro announcements: Real-time price discovery in foreign exchange. *American Economic Review* 93, 38-62.
- Andersen, T.G., Bollerslev, T., Diebold, F.X., Vega, C., 2007. Real-time price discovery in global stock, bond and foreign exchange markets. *Journal of International Economics* 73, 251-277.
- Ang, A., Longstaff, F.A., 2013. Systemic sovereign credit risk: Lessons from the U.S. and Europe. *Journal of Monetary Economics* 60, 493-510.
- Baum, C. F. and Wan, C., 2010. Macroeconomic uncertainty and credit default swap spreads. *Applied Financial Economics* 20, 1163-1171.
- Bae, K.-H., Karolyi, A.G., 1994. Good news, bad news and international spillovers of stock return volatility between Japan and the U.S. *Pacific-Basin Finance Journal* 2, 405-438.
- Balduzzi, P., Elton, E.J., Green, T.C., 2001. Economic News and Bond Prices: Evidence from the U.S. Treasury Market. *Journal of Financial and Quantitative Analysis* 36, 523-543.
- Beber, A., Brandt, M.W., 2010. When It Cannot Get Better or Worse: The Asymmetric Impact of Good and Bad News on Bond Returns in Expansions and Recessions. *Review of Finance* 14, 119-155.
- Beetsma, R., Giuliadori, M., De Jong, F., Widijanto, D., 2013. Spread the news: The impact of news on the European sovereign debt markets during the crisis. *Journal of International Money and Finance* 34, 83-101.
- Booth, G.G., Martikainen, T., Tse, Y., 1997. Price and volatility spillovers in Scandinavian stock markets. *Journal of Banking and Finance* 21, 811-823.

- Boyd, J.H., Hu, J., Jagannathan, R., 2005. The Stock Market's Reaction to Unemployment News: Why Bad News Is Usually Good for Stocks. *Journal of Finance* 60, 649-672.
- Braun, P.A., Nelson, D.B., Sunier, A.M., 1995. Good News, Bad News, Volatility, and Betas. *Journal of Finance* 50, 1575-1603.
- Brenner, M., Pasquariello, P., Subrahmanyam, M., 2009. On the Volatility and Comovement of U.S. Financial Markets around Macroeconomic News Announcements. *Journal of Financial and Quantitative Analysis* 44, 1265-1289.
- Chaudron, R., de Haan, J., 2014. Dating banking crises using incidence and size of bank failures: Four crises reconsidered, *Journal of Financial Stability* 15, 63-75.
- Chiarella, C., He, X., Ter Ellen, S., Wu, E., 2015. Fear or fundamentals? Heterogeneous beliefs in the European sovereign CDS market, *Journal of Empirical Finance*, in-press.
- Christiansen, C., Rinaldo, A., 2007. Realized Bond-Stock Correlation: Macroeconomic Announcement Effects. *Journal of Futures Markets* 27, 439-469.
- Conrad, J., Cornell, B., Landsman, W.R., 2002. When Is Bad News Really Bad News? *Journal of Finance* 57, 2507-2532.
- Delatte, A.-L., Gex, M., López-Villavicencio, A., 2012. Has the CDS market influenced the borrowing cost of European countries during the sovereign crisis? *Journal of International Money and Finance* 31, 481-497.
- Dieckmann, S., Plank, T., 2012. Default risk of advance economies: an empirical analysis of credit default swaps during the financial crisis. *Review of Finance* 16, 903-934.
- Engle, R., Ng, V., 1993. Measuring and testing the impact of news on volatility. *Journal of Finance* 43, 1749-77.
- Frijns, B., Tourani-Rad, A., Indriawan, I., 2012. Political crises and the stock market integration of emerging markets. *Journal of Banking and Finance* 36, 644-653.
- Galil, K., Soffer, G., 2011. Good news, bad news and rating announcements: An empirical investigation. *Journal of Banking and Finance*, 35, 3101-3119.
- Gande, A., Parsley, D.C., 2005. News spillovers in the sovereign debt market. *Journal of Financial Economics* 75, 691-734.
- Goeij, P.D., Marquering, W., 2006. Macroeconomic announcements and asymmetric volatility in bond returns. *Journal of Banking and Finance* 30, 2659-2680.
- Grammatikos, T., Vermuelen, R., 2012. Transmission of the financial and sovereign debt crises to the EMU: Stock prices, CDS spreads and exchange rates. *Journal of International Money and Finance* 31, 517-533.

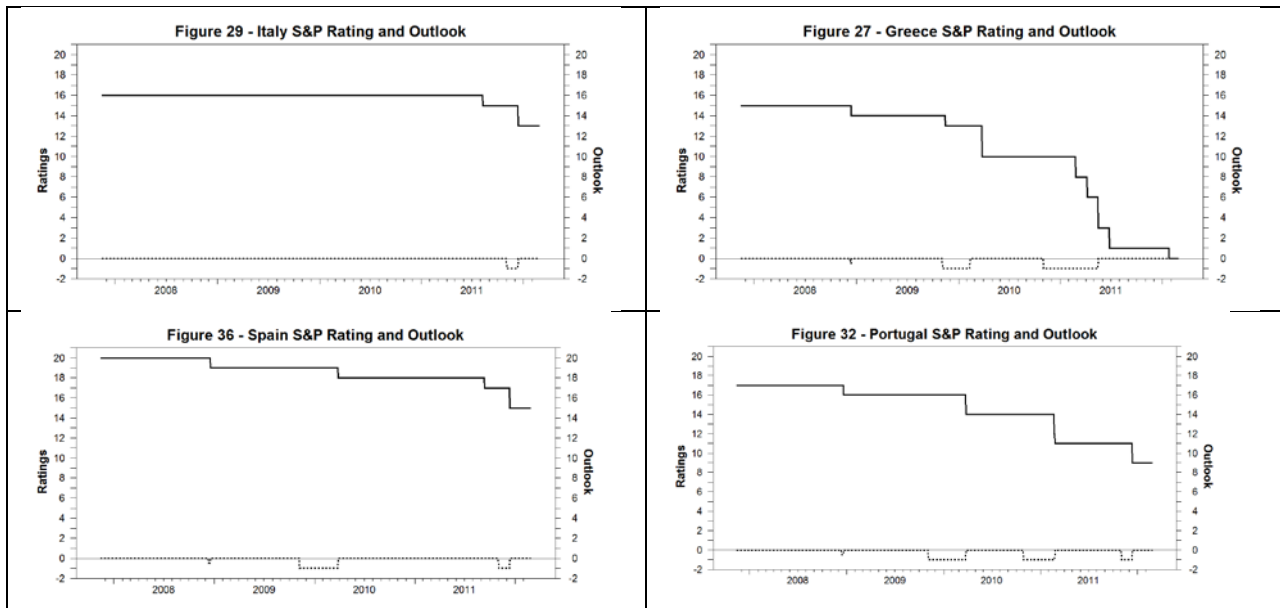
- Greatrex, C.A., 2009a. Credit Default Swap Market Determinants. *Journal of Fixed Income* 18, 18-32.
- Greatrex, C.A., 2009b. The Credit Default Swap Market's Reaction to Earnings Announcements. *Journal of Applied Finance* 19, 193-216.
- Hilscher, J., Nosbusch, Y., 2010. Determinants of sovereign risk: Macroeconomic fundamentals and the pricing of sovereign debt. *Review of Finance* 14, 235-262.
- Ismailescu, I., Kazemi, H., 2010. The reaction of emerging market credit default swap spreads to sovereign credit rating changes. *Journal of Banking and Finance* 34, 2861-2873.
- Jiang, G., Konstantinidi, E., Skiadopoulos, G., 2012. Volatility spillovers and the effect of news announcements. *Journal of Banking and Finance* 36, 2260-2273.
- Kaminsky, G., Schmukler, S.L., 2002. Emerging market instability: do sovereign ratings affect country risk and stock returns? *The World Bank Economic Review* 16, 171-195.
- Karolyi, G.A., Stultz, R.M., 1996. Why Do Markets Move Together? An Investigation of U.S.-Japan Stock Return Comovements. *Journal of Finance* 51, 951-986.
- Kim, S.-J., 2003. The spillover effects of U.S. and Japanese public information news in advanced Asia-Pacific stock markets. *Pacific Basin Finance Journal* 11, 611-630.
- Kim, S.J., McKenzie, M., Faff, R., 2004. Macroeconomic news announcements and the role of expectations: evidence for US bond, stock and foreign exchange markets. *Journal of Multinational Financial Management*, 14, 217-232.
- Laeven, L., Valencia, F., 2013. Systemic banking crises database. *IMF Economic Review* 61, 225-270.
- Longstaff, F.A., Pan, J., Pedersen, L.H., Singleton, K.J., 2011. How sovereign is sovereign credit risk? *American Economic Journal: Macroeconomics* 3, 75-103.
- Marsh, I., Wagner, W., 2012. Why is Price Discovery in Credit Default Swap Markets News-Specific? *European Banking Center Discussion Paper No. 2012-004*. Available at SSRN:<http://ssrn.com/abstract=1980860> or <http://dx.doi.org/10.2139/ssrn.1980860>.
- Montes, G., Tiberto, B., 2012. Macroeconomic environment, country risk and stock market performance: Evidence for Brazil. *Economic Modelling* 29, 1666-1678.
- Mun, K., 2012. The joint response of stock and foreign exchange markets to macroeconomic surprises: Using US and Japanese data. *Journal of Banking and Finance*, 36, 383-394.
- Norden, L., Weber, M., 2009. The Co-movement of Credit Default Swap, Bond and Stock Markets: an Empirical Analysis. *European Financial Management* 15, 529-562.
- Ozatay, F., Ozmen, E., Sahinbeyoglu, G., 2009. Emerging market sovereign spreads, global financial conditions and US macroeconomic news. *Economic Modelling* 26, 526-531.

- Pan, J., Singleton, K., 2008. Default and recovery implicit in the term structure of sovereign CDS spreads. *Journal of Finance* 63, 2345-2384.
- Remolona, E., Scatigna, M., Wu, E., 2008. The dynamic pricing of sovereign risk in emerging markets: Fundamentals and risk aversion. *Journal of Fixed Income* 17, 57-71.
- Riesen, H., von Maltzan, J., 1999. Boom and bust and sovereign ratings. *International Finance* 2, 273-293.
- Singh, M., Nejadmalayeri, A., Lucey, B. 2013. Do U.S. macroeconomic surprises influence equity returns? An exploratory analysis of developed economies. *Quarterly Review of Economics and Finance*, 53, 476-485.
- Uribe, M., Yue, V.Z., 2006. Country spreads and emerging countries: Who drives whom? *Journal of International Economics* 69, 6-36.
- Vrugt, E., 2009. U.S. and Japanese macroeconomic news and stock market volatility in Asia-Pacific, *Pacific Basin Finance Journal* 17, 611–627.

**Figure 1: Daily sovereign CDS spreads for selected sample countries**



**Figure 2: Selected plots of sovereign ratings history**



————— Ratings Movement  
 Ratings Scale: 20 = AAA, 0=D

..... Outlook for the period  
 Outlook Scale: -1 = Negative, 1 = Positive

**Table 1: Summary statistics of 5-year CDS spreads**

This table presents the summary statistics on the daily changes (log change) in sovereign CDS spreads for individual sample countries in each of the three regional groups. Panel A and B show the summary statistics for CDS spreads in level and in daily changes, respectively (in basis points). Q and Q<sup>2</sup>-tests are Box-Ljung tests of white noise of CDS changes and squared changes with 20 lags, respectively. ADF is augmented DF test with constant and 4 lags. \*\*\*, \*\* and \* are significance at 1, 5 and 10%, respectively.

Panel A: CDS spreads												
Country	Mean	Variance	Skewness	p-value	Kurtosis	p-value	J-B	Q-Test	p-value	Q <sup>2</sup> -Test	p-value	ADF
European, Middle East and Africa												
France	56.51	1468	0.8499	{0.0000}	0.1695	{0.2481}	136.30	20566 ***	{0.0000}	19095.67 ***	{0.0000}	-1.5462
Germany	32.49	331	0.5570	{0.0000}	0.1731	{0.2381}	59.36	19187 ***	{0.0000}	16587.33 ***	{0.0000}	-2.1581
Greece	1564.55	9382819	2.9067	{0.0000}	8.2621	{0.0000}	4766.94	21176 ***	{0.0000}	19239.33 ***	{0.0000}	3.1619
Italy	143.77	12002	1.4094	{0.0000}	1.3077	{0.0000}	450.99	20868 ***	{0.0000}	19812.50 ***	{0.0000}	-1.3124
Portugal	343.54	140171	1.2960	{0.0000}	0.2625	{0.0737}	317.05	21848 ***	{0.0000}	20600.26 ***	{0.0000}	-0.0568
Russia	239.64	34402	2.2265	{0.0000}	4.2614	{0.0000}	1774.40	18995 ***	{0.0000}	15857.14 ***	{0.0000}	-3.0279 *
South Africa	185.87	9026	2.1284	{0.0000}	4.0360	{0.0000}	1607.23	18348 ***	{0.0000}	16046.34 ***	{0.0000}	-2.6755
Spain	146.02	9446	0.6016	{0.0000}	-0.7411	{0.0000}	93.27	20869 ***	{0.0000}	19511.61 ***	{0.0000}	-1.1608
Turkey	234.40	9439	1.8927	{0.0000}	5.3208	{0.0000}	1991.68	17419 ***	{0.0000}	12752.30 ***	{0.0000}	-3.6284 **
UK	69.72	458	1.9341	{0.0000}	4.5057	{0.0000}	1647.15	18070 ***	{0.0000}	17443.34 ***	{0.0000}	-2.3553
Asia-Pacific												
Australia	65.80	673	1.4400	{0.0000}	3.3678	{0.0000}	917.20	19185 ***	{0.0000}	17360.30 ***	{0.0000}	-1.9926
China	95.22	2238	1.4718	{0.0000}	1.7431	{0.0000}	546.66	18703 ***	{0.0000}	16675.03 ***	{0.0000}	-2.6269
Japan	51.28	504	-0.1417	{0.0531}	-0.4091	{0.0053}	11.6	18158 ***	{0.0000}	15453.09 ***	{0.0000}	-2.3373
Indonesia	289.72	32789	1.5777	{0.0000}	2.5936	{0.0000}	779.24	19677 ***	{0.0000}	15281.24 ***	{0.0000}	-2.1072
South korea	144.76	8545	2.1118	{0.0000}	4.4541	{0.0000}	1759.87	18299 ***	{0.0000}	14209.61 ***	{0.0000}	-2.8462
Americas												
Argentina	1258.74	1096124	1.8402	{0.0000}	2.1745	{0.0000}	853.52	20694 ***	{0.0000}	19450.63 ***	{0.0000}	-1.7647
Brazil	160.69	6358	2.1756	{0.0000}	4.3065	{0.0000}	1751	17832 ***	{0.0000}	14979.21 ***	{0.0000}	-2.5941
Mexico	158.91	7738	1.9940	{0.0000}	3.7806	{0.0000}	1410.46	18296 ***	{0.0000}	15212.10 ***	{0.0000}	-2.6540
US	37.66	319	0.1469	{0.0450}	0.5417	{0.0002}	18	19719 ***	{0.0000}	17879.99 ***	{0.0000}	-2.3374
Panel B: Daily changes in CDS spreads												
Country	Mean	Variance	Skewness	p-value	Kurtosis	p-value	J-B	Q-Test	p-value	Q <sup>2</sup> -Test	p-value	ADF
European, Middle East and Africa												
France	0.0023	0.0030	1.4707	{0.0000}	20.5005	{0.0000}	20052.17	49.99 ***	{0.0002}	35.14 **	{0.0194}	-13.5816 **
Germany	0.0015	0.0033	0.5790	{0.0000}	11.0292	{0.0000}	5749.56	32.25 **	{0.0407}	73.28 ***	{0.0000}	-13.2639 **
Greece	0.0060	0.0029	-0.3457	{0.0000}	15.6827	{0.0000}	11520.44	49.54 ***	{0.0003}	87.51 ***	{0.0000}	-12.2527 **
Italy	0.0026	0.0031	-0.3160	{0.0000}	8.3768	{0.0000}	3299.19	59.64 ***	{0.0000}	154.24 ***	{0.0000}	-14.2994 **
Portugal	0.0023	0.0024	-1.4273	{0.0000}	22.8076	{0.0000}	24699.74	103.19 ***	{0.0000}	155.20 ***	{0.0000}	-13.9623 **
Russia	0.0002	0.0025	1.6038	{0.0000}	20.4803	{0.0000}	20090.05	69.11 ***	{0.0000}	403.82 ***	{0.0000}	-13.4856 **
South Africa	-0.0003	0.0023	-0.0340	{0.6427}	38.6693	{0.0000}	69906.26	63.31 ***	{0.0000}	527.12 ***	{0.0000}	-13.8216 **
Spain	0.0027	0.0031	-0.1965	{0.0073}	6.8172	{0.0000}	2179.91	65.72 ***	{0.0000}	261.41 ***	{0.0000}	-14.4911 **
Turkey	-0.0002	0.0015	0.9149	{0.0000}	15.7006	{0.0000}	11680.82	72.17 ***	{0.0000}	737.18 ***	{0.0000}	-13.7186 **
UK	0.0000	0.0014	0.1521	{0.0377}	4.9940	{0.0000}	1170.27	38.01 ***	{0.0088}	149.04 ***	{0.0000}	-14.4741 **
Asia-Pacific												
Australia	0.0000	0.0015	-0.1612	{0.0277}	15.9520	{0.0000}	11901.15	46.91 ***	{0.0006}	67.14 ***	{0.0000}	-13.1056 **
China	0.0012	0.0023	2.3378	{0.0000}	30.7125	{0.0000}	45119.46	28.96 *	{0.0886}	27.25	{0.1283}	-14.014 **
Japan	0.0011	0.0086	2.9531	{0.0000}	48.2947	{0.0000}	110669.6	153.91 ***	{0.0000}	8.19	{0.9905}	-14.4672 **
Indonesia	-0.0008	0.0016	1.0773	{0.0000}	16.8500	{0.0000}	13490.42	77.26 ***	{0.0000}	851.83 ***	{0.0000}	-14.5034 **
South korea	0.0009	0.0028	0.2964	{0.0001}	21.2825	{0.0000}	21191.50	34.48 **	{0.0231}	272.57 ***	{0.0000}	-12.6774 **
Americas												
Argentina	0.0005	0.0012	2.7011	{0.0000}	29.8556	{0.0000}	43035.26	156.06 ***	{0.0000}	248.48 ***	{0.0000}	-12.1908 **
Brazil	0.0002	0.0025	7.1577	{0.0000}	152.3935	{0.0000}	1095292	85.10 ***	{0.0000}	53.35 ***	{0.0001}	-15.0000 **
Mexico	0.0004	0.0023	1.1388	{0.0000}	31.5202	{0.0000}	46689.83	95.29 ***	{0.0000}	615.10 ***	{0.0000}	-14.2915 **
US	0.0012	0.0022	4.3945	{0.0000}	60.8525	{0.0000}	176728	54.51 ***	{0.0000}	31.66 **	{0.0471}	-12.5223 **



**Table 2: Summary of scheduled macroeconomic announcements for each country**

This table shows the specific macroeconomic announcement news available for each country in our sample over the period 14 November 2007 to 31 March 2012 and the frequency of their occurrence.

Announcement News			Announcement News			Announcement News		
	(1)	(2)		(1)	(2)		(1)	(2)
<b>Europe, Middle East &amp; Africa</b>			<b>Asia Pacific</b>			<b>Americas</b>		
<b>France</b>			<b>Australia</b>			<b>Argentina</b>		
Industrial Production	M	48 (24, 24, 0)	Unemployment	M	40 (17, 9, 14)	Current Account Balance	Q	18 (7, 7, 4)
Manufacturing PMI	BW	100 (49, 44, 7)	Quarterly GDP	Q	14 (5, 6, 3)	Quarterly GDP	Q	17 (7, 6, 4)
Quarterly GDP	BM	33 (13, 10, 10)	Trade Balance	M	40 (18, 18, 4)	Trade Balance	M	52 (26, 22, 4)
Trade Balance	M	51 (25, 14, 12)	Monthly Retail Sales	M	39 (16, 20, 3)	Unemployment Rate	M	23 (4, 1, 18)
Unemployment	Q	17 (9, 5, 3)	Current Account Balance	M	14 (5, 9, 0)	Yearly Industrial Production	M	51 (24, 25, 2)
<b>Germany</b>			<b>China</b>			<b>Brazil</b>		
Current Account Balance	M	51 (24, 25, 2)	Yearly GDP	Q	17 (9, 6, 2)	Current Account Balance	M	52 (25, 26, 1)
Factory Orders MoM	M	49 (22, 27, 0)	Industrial Production	M	42 (19, 21, 2)	PMI Manufacturing	M	50 (13, 15, 22)
Monthly Retail Sales	M	50 (12, 36, 2)	PMI Manufacturing	M	38 (18, 15, 5)	Trade Balance	M	51 (26, 25, 0)
PMI Manufacturing	BW	100 (51, 39, 10)	Retail Sales	M	41 (25, 12, 4)	Unemployment	M	52 (29, 15, 8)
Quarterly GDP	Q	32 (7, 8, 17)	Retail Sales Year-to-date	M	33 (8, 13, 12)	Yearly GDP	Q	17 (7, 8, 2)
Unemployment Change	M	51 (15, 23, 13)	Trade Balance	M	43 (23, 18, 2)	Yearly Industrial Production	M	51 (21, 29, 1)
<b>Greece</b>			<b>Indonesia</b>			<b>Yearly Retail Sales</b>		
GDP	Q	9 (3, 6, 0)	Trade Balance	M	37 (15, 14, 8)		M	52 (29, 23, 0)
Industrial Production	M	6 (2, 4, 0)	Yearly GDP	Q	11 (6, 5, 0)	<b>Mexico</b>		
Retail Sales	M	6 (4, 2, 0)	<b>Japan</b>			Current Account Balance	Q	17 (8, 7, 2)
Unemployment	M	18 (7, 9, 2)	Industrial Production	M	40 (16, 22, 2)	Industrial Production	M	49 (19, 28, 2)
<b>Italy</b>			Current Account Balance	M	49 (26, 23, 0)	Retail Sales	M	51 (19, 32, 0)
Industrial Production	M	49 (20, 29, 0)	Jobless Rate	M	50 (21, 18, 11)	Trade Balance	BM	101 (24, 22, 55)
Monthly Retail Sales	M	43 (17, 26, 0)	Quarterly GDP	BM	33 (15, 12, 6)	Unemployment	M	51 (25, 26, 0)
PMI Manufacturing	M	51 (28, 23, 0)	Retail Trade	M	49 (31, 17, 1)	Yearly GDP	Q	17 (9, 7, 1)
Quarterly GDP	BM	31 (6, 14, 11)	Tankan Large Manufacturers Index	Q	16 (10, 2, 4)	<b>United States</b>		
Unemployment	Q	17 (8, 4, 5)	Trade Balance	M	49 (30, 19, 0)	Initial Job Claims	W	221 (102, 114, 5)
<b>Portugal</b>			<b>South Korea</b>			Current Account Balance	Q	17 (8, 9, 0)
Quarterly GDP	BM	24 (11, 8, 5)	Current Account Balance	M	52 (14, 14, 24)	Industrial Production	M	46 (24, 23, -1)
<b>Russia</b>			Industrial Production YoY	M	52 (27, 24, 1)	Nonfarm Payrolls	M	49 (23, 22, 4)
Industrial Production	M	49 (24, 25, 0)	Unemployment	M	51 (28, 7, 16)	Quarterly GDP	M	51 (18, 23, 10)
Unemployment Rate	M	49 (26, 18, 5)	Yearly GDP	BM	34 (9, 6, 19)	Retail Sales	M	50 (23, 22, 5)
Yearly Real Retail Sales	M	49 (27, 19, 3)				Trade Balance	M	51 (25, 26, 0)
Trade Balance	M	48 (33, 15, 0)				Unemployment	M	50 (22, 17, 11)
Yearly GDP	Q	24 (2, 9, 13)						
<b>South Africa</b>								
Retail Sales	M	48 (25, 23, 0)						
Trade Balance	M	49 (22, 9, 18)						
Yearly GDP	Q	16 (8, 8, 0)						
Yearly Manufacturing Production	M	49 (24, 25, 0)						
<b>Spain</b>								
Quarterly GDP	M	30 (4, 5, 21)						
Industrial Production	M	51 (21, 22, 8)						
Unemployment	M	17 (5, 12, 0)						
<b>Turkey</b>								
Capacity Utilization	M	50 (19, 16, 15)						
Current Account Balance	M	104 (16, 18, 70)						
Industrial Production	M	36 (16, 19, 1)						
Unemployment	M	49 (16, 9, 24)						
Yearly GDP	Q	16 (10, 6, 0)						
<b>United Kingdom</b>								
Quarterly GDP	M	41 (10, 16, 15)						
Industrial Production MoM	M	37 (15, 22, 0)						
Monthly Retail Sales	M	38 (21, 17, 0)						
Trade Balance	M	41 (21, 20, 0)						
Unemployment	Q	14 (4, 3, 7)						

(1) Announcement frequency, BM: Bi-Monthly, BW: Bi-Weekly, M: Monthly, Q: Quarterly

(2) Total number of announcements made within the sample period are shown. The numbers inside the brackets represent the number of better than expected (Good) news, worse than expected (Bad) news, and the announcement that were correctly anticipated by the market, respectively. Within each country there is no dominance of the either good or bad news across the individual news variables.

**Table 3: Base line EGARCH estimation**

This table presents the EGARCH estimation results from equation (1) by regions. The mean equation results are for those variables shown in equation (1a) and the variance equation results are for those in equation (1b). \*\*\*, \*\* and \* denote significance at the 1, 5 and 10% levels respectively. Q(20)-z and Q(20)-z<sup>2</sup> are the Ljung-Box Q test statistics for the residuals and residuals squared. E-N are the test statistics for the Engle and Ng (1993) sign bias test.

$$\Delta CDS_t^i = \alpha_{i,c} + \sum_{p=1}^P \alpha_i \Delta CDS_{t-p}^i + \sum_{k=1}^l \alpha^{i,k} ControlVariables_{t-p}^{k,i} + \varepsilon_t \tag{1a}$$

$$\ln h_t^i = \beta_c^i + \beta_c^i \ln h_{t-1}^i + \beta_{\varepsilon 1}^i \frac{\varepsilon_{t-1}^i}{\sqrt{h_{t-1}^i}} + \beta_{\varepsilon 2}^i \frac{|\varepsilon_{t-1}^i|}{\sqrt{h_{t-1}^i}} \tag{1b}$$

	Europe, Middle East & Africa (EMEA)									
	France	Germany	Greece	Italy	Portugal	Russia	South Africa	Spain	Turkey	UK
	Mean Equation Coefficients									
Constant	0.00074 {0.7884}	0.00178 {0.2425}	0.00361 *** {0.0014}	0.00244 {0.3796}	0.00054 {0.7591}	-0.00515 *** {0.0027}	-0.00246 ** {0.0163}	-0.00063 {0.7467}	-0.00465 *** {0.0000}	-0.00104 {0.2453}
ΔCDS Lag	0.20351 *** {0.0000}	0.07747 *** {0.0013}	0.08176 *** {0.0030}	0.13123 *** {0.0000}	0.07273 *** {0.0059}	0.02660 {0.3506}	0.00931 {0.6891}	0.08372 *** {0.0013}	0.11612 *** {0.0000}	0.08347 *** {0.0006}
ΔStock Index	-0.75352 *** {0.0000}	-0.38261 *** {0.0002}	-0.81717 *** {0.0000}	-0.94893 *** {0.0000}	-1.37341 *** {0.0000}	-0.83668 *** {0.0000}	-1.24369 *** {0.0000}	-1.27904 *** {0.0000}	-0.83887 *** {0.0000}	-0.52734 *** {0.0009}
ΔBond Index	-0.23558 {0.6276}	0.59642 * {0.0925}	-0.05801 {0.7425}	0.52190 {0.1647}	1.10704 *** {0.0000}	-8.74251 *** {0.0000}	-7.45025 *** {0.0000}	1.34610 *** {0.0000}	0.24907 * {0.0618}	0.72100 *** {0.0097}
ΔShort-term Interest Rate	0.24836 *** {0.0000}	-0.23436 *** {0.0000}	0.00977 *** {0.0000}	0.27315 *** {0.0000}	-0.18636 {0.4716}	-0.05390 {0.3489}	-0.16782 {0.4357}	-0.12208 {0.7040}	1.09598 *** {0.0000}	-0.09540 *** {0.0214}
ΔUSD Exchange Rate	2.01250 *** {0.0000}	-1.96685 *** {0.0000}	-0.80852 *** {0.0000}	-1.34445 *** {0.0019}	0.07858 *** {0.0000}	-0.00152 *** {0.0000}	-0.06259 *** {0.0000}	0.49696 *** {0.0000}	-5.68023 *** {0.0000}	2.31550 *** {0.0000}
ΔEuro Exchange Rate						0.00040 *** {0.0000}	1.30560 *** {0.0000}		-1.38325 *** {0.0000}	-1.15094 *** {0.0070}
ΔS&P Outlook	0.12108 {0.7943}	0.05681 {0.6334}	-0.01359 {0.4111}	-0.12893 {0.1745}	-0.03175 * {0.0567}	-0.04706 {0.1081}	0.01722 {0.8347}	-0.10702 *** {0.0024}	0.00408 {0.8405}	-0.04383 {0.7774}
ΔS&P Rating	0.04873 {0.9259}	-0.18494 *** {0.0000}	-0.01048 {0.1120}	-0.04940 {0.3998}	-0.00955 {0.3090}	-0.03689 {0.3622}	0.04961 *** {0.0000}	-0.05858 {0.1932}	-0.02312 {0.8085}	10.36061 *** {0.0000}
ΔGold Spot	-0.07386 {0.6061}	0.65014 *** {0.0000}	-0.20806 *** {0.0015}	0.47590 *** {0.0005}	-0.23804 * {0.0791}	0.70432 *** {0.0000}	0.46877 *** {0.0000}	0.04561 {0.7412}	-0.04214 {0.6160}	0.20644 {0.2823}
ΔOil Spot	-0.18660 * {0.0517}	-0.69187 *** {0.0000}	0.19607 *** {0.0019}	-0.49805 *** {0.0004}	0.37972 *** {0.0001}	0.00660 {0.9593}	-0.02097 {0.6706}	0.06481 {0.5499}	0.12429 *** {0.0000}	-0.07631 {0.6448}
ΔCommodity Index	-0.14670 {0.3506}	0.44923 *** {0.0004}	-0.41354 *** {0.0000}	-0.28905 *** {0.0088}	-0.42246 *** {0.0004}	-0.67206 *** {0.0002}	-0.84025 *** {0.0000}	-0.63800 *** {0.0000}	-1.11545 *** {0.0000}	0.01570 {0.9359}
ΔVIX	0.20780 *** {0.0000}	0.11598 *** {0.0000}	0.02694 * {0.0876}	0.05748 * {0.0893}	0.03811 * {0.0831}	-0.13501 *** {0.0000}	0.18614 *** {0.0000}	0.00389 {0.8924}	0.20993 *** {0.0000}	0.14801 *** {0.0000}
	Variance Equation Coefficients									
Variance Intercept Term	-2.67754 *** {0.0000}	-0.46080 *** {0.0000}	-0.39925 *** {0.0000}	-7.15580 *** {0.0000}	-0.12185 *** {0.0000}	-0.76876 *** {0.0000}	-0.39639 *** {0.0000}	-0.62996 *** {0.0000}	-0.44412 *** {0.0000}	-0.12925 *** {0.0000}
Lagged Error Parameter	0.48893 *** {0.0000}	0.35765 *** {0.0000}	0.20002 *** {0.0000}	0.14138 *** {0.0000}	0.10829 *** {0.0000}	0.55737 *** {0.0000}	0.29371 *** {0.0000}	0.20405 *** {0.0000}	0.28076 *** {0.0000}	0.05357 *** {0.0000}
Lagged Conditional Variance	0.45154 *** {0.0000}	0.94553 *** {0.0000}	0.95199 *** {0.0000}	-0.54708 *** {0.0000}	0.99179 *** {0.0000}	0.92465 *** {0.0000}	0.96576 *** {0.0000}	0.90334 *** {0.0000}	0.95457 *** {0.0000}	0.98122 *** {0.0000}
Asymmetric Component	-0.07586 *** {0.0012}	-0.13917 *** {0.0000}	-0.05419 *** {0.0000}	-0.27394 *** {0.0000}	-0.02713 *** {0.0053}	-0.14034 *** {0.0000}	-0.02767 *** {0.0000}	-0.02548 *** {0.0130}	-0.14832 *** {0.0000}	-0.10753 *** {0.0000}
	Diagnostics									
Q(20)-z	15.27 {0.7605}	16.97 {0.6546}	26.59 {0.1471}	30.82 * {0.0576}	15.25 {0.7618}	11.23 {0.9401}	25.33 {0.1890}	24.58 {0.2178}	18.20 {0.5744}	23.82 {0.2505}
Q(20)-z <sup>2</sup>	57.51 *** {0.0000}	34.60 ** {0.0224}	9.09 {0.9819}	255.30 *** {0.0000}	15.13 {0.7691}	7.88 {0.9926}	24.14 {0.2363}	9.48 {0.9766}	15.04 {0.7742}	16.90 {0.6597}
E-N	1.19 {0.7553}	1.74 {0.6275}	1.54 {0.6726}	15.27 *** {0.0016}	7.99 ** {0.0463}	0.76 {0.8585}	1.32 {0.7250}	2.54 {0.4681}	0.96 {0.8115}	5.77 {0.1232}

**Table 3: Base line EGARCH estimation - Continued**

	Asia Pacific (APA)					Americas			
	Australia	China	Indonesia	Japan	South Korea	Argentina	Brazil	Mexico	US
<i>Mean Equation Coefficients</i>									
Constant	-0.00238 *** {0.0019}	0.00037 {0.5677}	0.00165 {0.1709}	-0.00960 *** {0.0000}	-0.00030 {0.8217}	-0.00133 * {0.0894}	-0.00500 *** {0.0000}	-0.00276 *** {0.0000}	-0.00406 ** {0.0165}
ΔCDS Lag	0.04734 {0.1003}	0.03112 {0.2162}	0.12828 *** {0.0000}	-0.07493 ** {0.0111}	0.04836 * {0.0973}	0.12912 *** {0.0000}	0.03104 {0.2241}	0.07061 *** {0.0023}	0.08134 ** {0.0265}
ΔStock Index	-0.97329 *** {0.0000}	-0.64571 *** {0.0000}	-1.18328 *** {0.0000}	-1.58195 *** {0.0000}	-1.14788 *** {0.0000}	-0.33411 *** {0.0000}	-0.76018 *** {0.0000}	-1.39479 *** {0.0000}	0.94379 *** {0.0000}
ΔBond Index	-0.17440 {0.4973}	-8.62856 *** {0.0000}	1.49906 *** {0.0000}	0.92504 *** {0.0003}	-3.43046 *** {0.0000}	-3.54772 *** {0.0000}	0.24782 ** {0.0303}	-6.20448 *** {0.0000}	-0.01635 {0.9287}
ΔShort-term Interest Rate	-0.20312 *** {0.0000}	-0.42982 *** {0.0001}	-0.26514 {0.2927}	0.02253 {0.4202}	-0.11049 {0.5845}	0.04299 *** {0.0074}	-4.40702 *** {0.0000}	0.05571 {0.6612}	-0.07090 ** {0.0221}
ΔUSD Exchange Rate	0.07823 {0.5340}	4.97600 *** {0.0000}	-0.03747 *** {0.0000}	0.48779 *** {0.0001}	1.60962 *** {0.0000}	0.29737 *** {0.0000}	0.11740 *** {0.0000}	4.41224 *** {0.0000}	
ΔEuro Exchange Rate	-0.38322 ** {0.0467}	1.12233 *** {0.0000}	0.07897 *** {0.0000}	-1.50190 *** {0.0000}	0.09220 {0.3153}	-0.00614 *** {0.0000}	0.11514 *** {0.0000}	-0.03123 *** {0.0000}	2.42324 *** {0.0000}
ΔS&P Outlook	0.01058 *** {0.0000}	0.05107 {0.8979}	-0.05248 {0.6707}	-0.74289 *** {0.0000}	0.02580 *** {0.0000}	-0.00403 {0.9132}	-0.08090 *** {0.0000}	-0.06350 {0.3197}	-0.07525 {0.7459}
ΔS&P Rating	-0.00315 *** {0.0000}	0.03286 {0.9182}	-0.00546 {0.9444}	-0.03141 {0.9377}	0.72601 *** {0.0000}	-0.03175 {0.3712}	-0.03527 *** {0.0000}	-0.05709 {0.3745}	-0.04385 {0.8928}
ΔGold Spot	-0.20477 {0.1935}	0.40061 *** {0.0000}	0.02987 {0.6975}	-0.45521 *** {0.0000}	0.37909 *** {0.0000}	0.75372 *** {0.0000}	0.35198 *** {0.0000}	0.44422 *** {0.0000}	0.07900 {0.5547}
ΔOil Spot	-0.14399 * {0.0731}	0.17886 * {0.0665}	-0.09714 {0.1513}	0.68568 *** {0.0000}	0.11373 {0.1919}	-0.07864 * {0.0544}	0.17504 *** {0.0000}	-0.05230 {0.3904}	0.52791 *** {0.0000}
ΔCommodity Index	-0.15446 * {0.0999}	-0.70475 *** {0.0000}	-0.09542 {0.1496}	-0.49130 *** {0.0000}	-0.42301 *** {0.0000}	-0.43001 *** {0.0000}	-1.48822 *** {0.0000}	-0.75647 *** {0.0000}	-0.58375 *** {0.0002}
ΔVIX	0.02923 ** {0.0161}	0.14198 *** {0.0000}	0.03681 ** {0.0285}	0.05956 *** {0.0040}	0.03346 * {0.0514}	0.12790 *** {0.0000}	0.15329 *** {0.0000}	0.11778 *** {0.0000}	0.09679 *** {0.0007}
<i>Variance Equation Coefficients</i>									
Variance Intercept Term	-0.14764 *** {0.0000}	-0.24509 *** {0.0000}	-1.16518 *** {0.0000}	-3.68008 *** {0.0000}	-0.53578 *** {0.0000}	-0.82917 *** {0.0000}	-0.45335 *** {0.0000}	-0.39513 *** {0.0000}	-5.13963 *** {0.0000}
Lagged Error Parameter	0.11384 *** {0.0000}	0.07528 *** {0.0000}	0.40993 *** {0.0000}	0.55246 *** {0.0000}	0.25041 *** {0.0000}	0.51535 *** {0.0000}	0.39786 *** {0.0000}	0.36409 *** {0.0000}	0.41008 *** {0.0000}
Lagged Conditional Variance	0.98362 *** {0.0000}	0.96260 *** {0.0000}	0.84862 *** {0.0000}	0.18694 *** {0.0000}	0.93690 *** {0.0000}	0.91904 *** {0.0000}	0.96743 *** {0.0000}	0.97132 *** {0.0000}	-0.05690 *** {0.0000}
Asymmetric Component	-0.08840 *** {0.0000}	-0.11236 *** {0.0000}	0.15535 *** {0.0000}	0.49383 *** {0.0000}	0.03552 *** {0.0046}	-0.15681 *** {0.0000}	-0.13960 *** {0.0000}	-0.18264 *** {0.0000}	0.19671 *** {0.0000}
<i>Diagnostics</i>									
Q(20)-z	21.22 {0.3845}	18.73 {0.5395}	29.98 * {0.0701}	14.33 {0.8136}	40.61 *** {0.0042}	34.76 ** {0.0214}	28.46 * {0.0990}	32.27 ** {0.0405}	20.80 {0.4087}
Q(20)-z <sup>2</sup>	10.56 {0.9568}	3.70 {1.0000}	11.00 {0.9463}	1.39 {1.0000}	34.86 ** {0.0209}	14.46 {0.8062}	4.25 {0.9999}	8.00 {0.9919}	108.05 *** {0.0000}
E-N	2.49 {0.4769}	0.06 {0.9962}	3.41 {0.3322}	1.46 {0.6905}	1.21 {0.7516}	5.87 {0.1183}	1.20 {0.7540}	1.51 {0.6802}	0.35 {0.9506}

**Table 4: Spillover news effects from major economies in the EMEA region**

This table presents the EGARCH estimation results from equation (2) by regions. The mean equation results are for those variables shown in equation (2a) and the variance equation results are for those in equation (2b). \*\*\*, \*\* and \* denote significance at 1, 5 and 10% respectively.

$$\Delta CDS_t^i = RHS \text{ of (1a)} + \sum_{j=1}^q \alpha_i^j GoodNewsIndex_t^{i,j} + \sum_{j=1}^q \alpha_i^j BadNewsIndex_t^{i,j} \quad (2a)$$

$$\ln h_t^i = RHS \text{ of (1b)} + \sum_{j=1}^q \beta^{i,j} |GoodNewsIndex_t^{i,j}| + \sum_{k=1}^q \beta^{i,k} |BadNewsIndex_t^{i,k}| \quad (2b)$$

	Europe, Middle East & Africa (EMEA)									
	France	Germany	Greece	Italy	Portugal	Russia	South Africa	Spain	Turkey	UK
<i>Conditional Mean Coefficients</i>										
Domestic Good News	-0.00608*** {0.0075}	-0.00249*** {0.0000}	0.00435 {0.5222}	-0.00259*** {0.0000}	-0.00403 {0.5419}	-0.00411* {0.0621}	0.00001 {0.9934}	0.00249 {0.3527}	-0.00073* {0.0702}	-0.00422 {0.2212}
Domestic Bad News	0.00108 {0.6555}	0.00585*** {0.0001}	0.00298 {0.3387}	0.00044 {0.6959}	0.00331 {0.8142}	0.00034 {0.8831}	0.00205** {0.0121}	-0.00142 {0.5508}	0.00066 {0.6726}	0.00580* {0.0668}
China Good News	-0.00580*** {0.0004}	-0.00371*** {0.0000}	-0.00536*** {0.0017}	-0.00645*** {0.0008}	-0.00683** {0.0174}	-0.00440** {0.0296}	-0.00139 {0.3027}	-0.00435* {0.0699}	-0.00381*** {0.0013}	-0.00706*** {0.0018}
China Bad News	0.00303 {0.4241}	0.00946*** {0.0021}	0.00213 {0.6030}	0.00591 {0.1068}	0.00929** {0.0348}	0.00656*** {0.0000}	-0.00052 {0.7607}	0.00389 {0.4223}	0.00224*** {0.0000}	-0.00074 {0.8593}
Eurozone Good News	-0.00306** {0.0190}	-0.00237*** {0.0000}	0.00009 {0.9515}	0.00105 {0.6488}	-0.00359** {0.0301}	-0.00281 {0.1246}	-0.00280*** {0.0007}	0.00066 {0.7343}	-0.00151* {0.0676}	0.00079 {0.7763}
Eurozone Bad News	-0.00290* {0.0960}	-0.00641** {0.0234}	-0.00172 {0.1659}	-0.00353* {0.0556}	-0.00555*** {0.0001}	0.00298** {0.0375}	0.00077 {0.3966}	-0.00186 {0.5140}	0.00007 {0.8474}	0.00379 {0.1913}
United States Good News	-0.00364*** {0.0007}	-0.00285*** {0.0023}	0.00083 {0.5987}	0.00207** {0.0310}	0.00457*** {0.0022}	0.00048 {0.7464}	-0.00334*** {0.0000}	0.00082 {0.5544}	0.00191** {0.0396}	0.00121 {0.5194}
United States Bad News	-0.00033 {0.8491}	0.00203 {0.2821}	-0.00024 {0.8914}	-0.00007 {0.9641}	0.00155 {0.1349}	0.00366** {0.0367}	-0.00012 {0.9105}	0.00297* {0.0605}	0.00083 {0.4416}	-0.00281 {0.1091}
<i>Conditional Variance Coefficients</i>										
Domestic Good News	0.22158*** {0.0000}	0.13403*** {0.0000}	0.12948*** {0.0000}	0.00415 {0.8445}	0.22738 {0.1822}	0.00437 {0.8555}	-0.13688*** {0.0007}	0.15268*** {0.0000}	0.01771 {0.7029}	0.17010*** {0.0089}
Domestic Bad News	0.09556*** {0.0064}	-0.14701*** {0.0001}	0.04052 {0.1267}	0.04141 {0.1108}	0.34290 {0.2974}	-0.00697 {0.8374}	0.05985*** {0.0000}	0.02776 {0.4720}	0.04119 {0.3870}	-0.08880 {0.3672}
China Good News	-0.05351 {0.2200}	-0.19120*** {0.0000}	-0.00963 {0.5320}	-0.23410*** {0.0000}	-0.12647 {0.1616}	-0.22820*** {0.0000}	-0.23653*** {0.0000}	-0.25856*** {0.0000}	-0.06554 {0.1894}	-0.13880 {0.1862}
China Bad News	0.14923** {0.0316}	0.07140 {0.1820}	0.18164*** {0.0000}	0.15422*** {0.0011}	0.15767* {0.0590}	-0.06533* {0.0743}	-0.07404 {0.1265}	0.22400*** {0.0018}	-0.18824*** {0.0022}	0.22891*** {0.0002}
Europe Good News	-0.18856*** {0.0000}	-0.02484 {0.4870}	-0.05643*** {0.0000}	-0.05186 {0.1459}	0.03685 {0.1683}	-0.07815*** {0.0097}	-0.15857*** {0.0000}	-0.15598*** {0.0018}	-0.05824* {0.0744}	0.02026 {0.6467}
Europe Bad News	0.06215*** {0.0013}	0.20307*** {0.0000}	0.01587*** {0.0002}	0.03873 {0.2694}	0.15558*** {0.0000}	-0.18738*** {0.0000}	0.01054 {0.3150}	0.00700 {0.8877}	-0.03185 {0.2646}	0.11750* {0.0776}
United States Good News	-0.32862*** {0.0000}	-0.33021*** {0.0000}	-0.10371*** {0.0000}	-0.21602*** {0.0000}	-0.00259 {0.9497}	-0.04142* {0.0510}	-0.04295*** {0.0080}	-0.02142 {0.3584}	-0.09075*** {0.0096}	-0.00826 {0.8920}
United States Bad News	-0.18858*** {0.0000}	0.05149* {0.0623}	-0.02476*** {0.0004}	-0.06561*** {0.0008}	-0.05114*** {0.0014}	0.01769 {0.2003}	0.03283*** {0.0091}	-0.14410*** {0.0001}	-0.00518 {0.8885}	-0.09071** {0.0132}
<i>Diagnostics</i>										
Q(20)-z	27.01 {0.1350}	23.26 {0.2763}	36.92** {0.0120}	24.17 {0.2350}	19.44 {0.4931}	19.30 {0.5022}	23.19 {0.2797}	29.11* {0.0856}	17.26 {0.6360}	18.21 {0.5733}
Q(20)-z <sup>2</sup>	48.02 {0.0004}	18.34 {0.5653}	18.63 {0.5457}	10.98 {0.9468}	15.87 {0.7249}	15.76 {0.7312}	13.59 {0.8505}	8.76 {0.9855}	20.40 {0.4329}	25.81 {0.1723}
E-N	3.53 {0.3172}	3.90 {0.2730}	9.81** {0.0203}	4.78 {0.1883}	1.65 {0.6472}	3.68 {0.2980}	1.03 {0.7940}	0.71 {0.8720}	1.66 {0.6448}	0.79 {0.8530}

**Table 5: Spillover news effects from major economies in the APA region**

This table presents the EGARCH estimation results from equation (2) by region. The mean equation results are for those variables shown in equation (2a) and the variance equation results are for those in equation (2b). \*\*\*, \*\* and \* denote significance at 1, 5 and 10% respectively.

$$\Delta CDS_t^i = RHS \text{ of (1a)} + \sum_{j=1}^q \alpha_i^j GoodNewsIndex_t^{i,j} + \sum_{j=1}^q \alpha_i^j BadNewsIndex_t^{i,j} \quad (2a)$$

$$\ln h_t^i = RHS \text{ of (1b)} + \sum_{j=1}^q \beta^{i,j} |GoodNewsIndex_t^{i,j}| + \sum_{k=1}^q \beta^{i,k} |BadNewsIndex_t^{i,j}| \quad (2b)$$

	Asia Pacific (APA)				
	Australia	China	Indonesia	Japan	South Korea
	Conditional Mean Coefficients				
Domestic Good News	-0.00365 *** {0.0074}	-0.00351 ** {0.0132}	0.00156 {0.3786}	0.00109 {0.5696}	-0.00013 {0.9246}
Domestic Bad News	0.00377 * {0.0815}	0.00155 {0.2296}	0.00463 ** {0.0120}	0.00044 {0.8680}	0.00065 {0.7252}
China Good News	0.00158 {0.3787}		0.00146 {0.2344}	0.00823 *** {0.0100}	-0.00044 {0.7752}
China Bad News	0.00523 {0.2743}		0.00549 *** {0.0001}	0.00782 {0.1136}	-0.00116 {0.6719}
Eurozone Good News	0.00671 *** {0.0003}	0.00020 {0.8836}	-0.00004 {0.9541}	0.00332 {0.4506}	-0.00100 {0.5473}
Eurozone Bad News	0.00018 {0.9157}	0.00277 ** {0.0193}	-0.00158 * {0.0874}	0.00374 {0.2580}	0.00337 *** {0.0065}
United States Good News	-0.00429 *** {0.0000}	-0.00359 ** {0.0436}	-0.00391 *** {0.0000}	-0.00083 {0.3891}	-0.00282 *** {0.0022}
United States Bad News	0.00740 *** {0.0000}	0.00387 {0.1866}	-0.00006 {0.9301}	0.00170 ** {0.0423}	0.00363 *** {0.0000}
Conditional Variance Coefficients					
Domestic Good News	0.15188 *** {0.0000}	-0.42769 *** {0.0000}	0.12455 *** {0.0006}	-0.38561 *** {0.0000}	-0.02138 {0.2302}
Domestic Bad News	0.31211 *** {0.0000}	0.36196 *** {0.0000}	-0.09787 *** {0.0096}	0.13611 ** {0.0371}	-0.08070 *** {0.0020}
China Good News	-0.37447 *** {0.0000}		-0.01905 {0.3836}	-0.10831 {0.1587}	-0.24775 *** {0.0000}
China Bad News	0.21022 *** {0.0000}		0.05473 {0.1090}	-0.10399 {0.4791}	0.38107 *** {0.0000}
Europe Good News	0.21460 *** {0.0000}	-0.02300 {0.5361}	-0.10877 *** {0.0000}	0.14282 ** {0.0388}	0.00093 {0.9685}
Europe Bad News	0.17295 *** {0.0000}	0.12050 *** {0.0003}	0.05416 *** {0.0000}	0.08907 {0.1390}	-0.09961 *** {0.0000}
United States Good News	0.20339 *** {0.0000}	0.11656 *** {0.0000}	0.17095 *** {0.0000}	0.46568 ** {0.0394}	-0.02788 *** {0.0000}
United States Bad News	0.37145 *** {0.0000}	0.11597 *** {0.0000}	-0.10251 *** {0.0000}	-0.25985 *** {0.0003}	-0.10490 *** {0.0000}
Diagnostics					
Q(20)-z	25.71 {0.1757}	22.79 {0.2991}	23.79 {0.2517}	54.01 *** {0.0001}	44.69 *** {0.0012}
Q(20)-z <sup>2</sup>	9.44 {0.9772}	9.43 {0.9773}	13.48 {0.8559}	19.80 {0.4704}	6.03 {0.9989}
E-N	2.60 {0.4578}	1.61 {0.6560}	0.83 {0.8419}	0.22 {0.9740}	0.94 {0.8147}

**Table 6: Spillover news effects from major economies in the Americas**

This table presents the EGARCH estimation results from equation (2) by region. The mean equation results are for those variables shown in equation (2a) and the variance equation results are for those in equation (2b). \*\*\*, \*\* and \* denote significance at 1, 5 and 10% respectively.

$$\Delta CDS_t^i = RHS \text{ of (1a)} + \sum_{j=1}^q \alpha_i^j GoodNewsIndex_t^{ij} + \sum_{j=1}^q \alpha_i^j BadNewsIndex_t^{ij} \quad (2a)$$

$$\ln h_t^i = RHS \text{ of (1b)} + \sum_{j=1}^q \beta^{i,j} |GoodNewsIndex_t^{ij}| + \sum_{k=1}^q \beta^{i,k} |BadNewsIndex_t^{ik}| \quad (2b)$$

	Americas			
	Argentina	Brazil	Mexico	US
<i>Conditional Mean Coefficients</i>				
Domestic Good News	-0.00294 * {0.0706}	-0.00392 ** {0.0283}	-0.00462 *** {0.0000}	-0.00431 *** {0.0000}
Domestic Bad News	0.00306 {0.2959}	0.00308 *** {0.0062}	0.00172 ** {0.0216}	0.00159 ** {0.0439}
China Good News	0.00139 {0.1072}	-0.00416 *** {0.0005}	0.00125 *** {0.0000}	-0.00770 *** {0.0000}
China Bad News	0.00093 {0.3996}	0.00467 {0.1059}	-0.00008 {0.9650}	0.00099 {0.5565}
Eurozone Good News	-0.00201 *** {0.0001}	-0.00306 ** {0.0177}	-0.00284 *** {0.0000}	-0.00161 {0.1055}
Eurozone Bad News	-0.00291 *** {0.0022}	0.00372 *** {0.0005}	-0.00020 {0.8494}	-0.00084 {0.4067}
United States Good News	0.00125 {0.1782}	-0.00011 {0.9147}	-0.00107 {0.1892}	
United States Bad News	0.00154 ** {0.0426}	0.00166 ** {0.0156}	0.00016 {0.7772}	
<i>Conditional Variance Coefficients</i>				
Domestic Good News	-0.00646 {0.8856}	-0.10837 *** {0.0080}	0.26978 *** {0.0000}	0.10939 *** {0.0000}
Domestic Bad News	0.41470 *** {0.0000}	0.46897 *** {0.0000}	-0.07357 *** {0.0000}	0.10511 *** {0.0000}
China Good News	-0.44913 *** {0.0000}	-0.32882 *** {0.0000}	-0.02474 {0.2007}	0.11193 *** {0.0000}
China Bad News	-0.16834 *** {0.0050}	-0.07922 {0.3249}	-0.16124 *** {0.0000}	-0.10259 *** {0.0000}
Europe Good News	-0.25476 *** {0.0000}	-0.25047 *** {0.0000}	-0.23532 *** {0.0000}	-0.21838 *** {0.0000}
Europe Bad News	-0.01282 {0.6022}	0.30234 *** {0.0000}	-0.07237 *** {0.0000}	0.00932 {0.5413}
United States Good News	0.01904 {0.2855}	-0.33613 *** {0.0000}	0.01029 {0.4083}	
United States Bad News	0.08888 *** {0.0000}	0.35624 *** {0.0000}	-0.02744 ** {0.0283}	
<i>Diagnostics</i>				
Q(20)-z	30.40 * {0.0636}	56.59 *** {0.0000}	28.99 * {0.0879}	25.51 {0.1827}
Q(20)-z <sup>2</sup>	12.62 {0.8930}	14.06 {0.8273}	7.40 {0.9952}	14.82 {0.7868}
E-N	2.41 {0.4924}	0.47 {0.9257}	3.42 {0.3312}	0.74 {0.8627}

**Table 7: Overall spillover news effects**

This table summarizes the number of countries in each region with significant responses in the first two moments of sovereign CDS spread changes to its own good and bad news as well as those from the 3 major economies of China, the Eurozone and the U.S. (as reported in Tables 4-6). '+' and '-' represent the number of countries that show significantly positive and negative news coefficients, respectively.

	Mean								Variance							
	EMEA		APA		Americas		Total		EMEA		APA		Americas		Total	
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Domestic Good News	0	5	0	2	0	4	<b>0</b>	<b>11</b>	5	1	2	2	2	1	<b>9</b>	<b>4</b>
Domestic Bad News	3	0	2	0	3	0	<b>8</b>	<b>0</b>	2	1	3	2	3	1	<b>8</b>	<b>4</b>
China Good News	0	9	1	0	1	2	<b>2</b>	<b>11</b>	0	5	0	2	1	2	<b>1</b>	<b>9</b>
China Bad News	4	0	1	0	0	0	<b>5</b>	<b>0</b>	6	2	2	0	0	3	<b>8</b>	<b>5</b>
Eurozone Good News	0	5	1	0	0	3	<b>1</b>	<b>8</b>	0	6	2	1	0	1	<b>2</b>	<b>8</b>
Eurozone Bad News	1	4	2	1	1	1	<b>4</b>	<b>6</b>	5	1	3	1	1	1	<b>9</b>	<b>3</b>
United States Good News	3	3	0	4	0	0	<b>3</b>	<b>7</b>	0	7	4	1	0	1	<b>4</b>	<b>9</b>
United States Bad News	2	0	3	0	2	0	<b>7</b>	<b>0</b>	2	6	2	3	2	1	<b>6</b>	<b>10</b>
<b>Total: Spillover Good News</b>	<b>3</b>	<b>17</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>26</b>	<b>0</b>	<b>18</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>26</b>
<b>Spillover Bad news</b>	<b>7</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>16</b>	<b>6</b>	<b>13</b>	<b>9</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>23</b>	<b>18</b>

**Table 8: Overall spillover news effects – Using first principal component of news**

This table presents the summaries of the estimations across the three regions using an alternative measure of national news index as a robustness check. A first principal component of all the news variables (Good and Bad news considered separately) as listed in Table 2 is used as a news index for each country. The number of countries in each region with significant responses in the first two moments of sovereign CDS spread changes to its own good and bad news as well as those from the 3 major economies of China, the Eurozone and the U.S. (as reported in Tables 4-6). ‘+’ and ‘-’ represent the number of countries that show significantly positive and negative news coefficients, respectively.

	Mean								Variance							
	EMEA		APA		Americas		Total		EMEA		APA		Americas		Total	
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Domestic Good News	0	3	2	1	0	2	2	6	4	1	0	3	1	1	5	5
Domestic Bad News	3	1	0	0	1	1	4	2	5	0	1	3	1	1	7	4
China Good News	1	4	1	1	1	2	3	7	2	4	1	3	0	4	3	11
China Bad News	3	3	1	1	3	0	7	4	4	1	3	1	0	2	7	4
Eurozone Good News	0	3	0	0	1	0	1	3	1	8	3	1	1	3	5	12
Eurozone Bad News	0	2	1	2	1	1	2	5	7	2	2	2	1	3	10	7
United States Good News	2	0	0	2	0	1	2	3	0	8	2	2	0	3	2	13
United States Bad News	4	1	2	1	2	0	8	2	2	3	3	2	2	1	7	6
<b>Total: Spillover Good News</b>	<b>3</b>	<b>7</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>13</b>	<b>3</b>	<b>20</b>	<b>6</b>	<b>6</b>	<b>1</b>	<b>10</b>	<b>10</b>	<b>36</b>
<b>Spillover Bad news</b>	<b>7</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>17</b>	<b>11</b>	<b>13</b>	<b>6</b>	<b>8</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>24</b>	<b>17</b>