

1 IMPACT OF FOMC OFFICIAL SPEECHES ON THE INTRADAY DYNAMICS OF CDS MARKETS¹

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Abstract

In present times, transparency has become one of the keywords on the agenda of every major central bank. Given this trend, these institutions have greatly increased their communication processes. In this context, this paper studies the impact of a battery of official speeches delivered by members of the Federal Open Market Committee on the dynamics of sovereign credit default swaps belonging to a vast array of countries. We use a set of GARCH models and intraday frequencies for the above mentioned financial assets.

We find that these speeches have an important effect on the CDS returns of several of the countries included in the study.

Keyword: FOMC, official speeches, CDS

JEL Classification: G14, G21, C5

I. Introduction

Traditionally, the central banks held a very parsimonious position in terms of their public communications. This changed during the last two decades because the vast majority of financial institutions focused on enhancing the transparency of their operations. The communication process implies many tools, such as: speeches, minutes, press releases, or the publication of reports, forecasts or analyses. The importance of these measures has been highlighted in the scientific literature, the main results of

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communication and transparency being financial stability, credibility of the central banks and accountability of their actions (Born, 2011).

Empirical studies have pointed out the fact that the financial markets tend to react to official communications because these announcements induce a significant dose of information. This wave of interest has crystallized into a powerful and rapidly expanding literature that evaluates how the communication policy of a central bank affects the dynamics of various financial assets. Key contributions in this area have been put forward by Connolly and Kohler (2004) Beine *et al.* (2009), Hayo *et al.* (2009), Dewachter *et al.* (2014), Albu *et al.* (2014a).

This paper focuses solely on the official speeches delivered by the FOMC representatives and contributes to the existing literature by assuming two objectives. Firstly, we aim to determine the possible alterations in terms of volatility that derive from these oral presentations. Secondly, we try to determine whether the official speeches determine jumps in the returns of the financial assets included in our investigation.

To our knowledge, this is the first study that tries to determine the impact of the central bank's official speeches on the CDS market at an intraday level.

The remainder of this paper is organized as follows. Section II deals with a short literature review. Section III covers the data and methodology used in this investigation. Section IV is dedicated to the interpretation of the obtained results and the final section concludes.

II. Literature Review

As stated above, the effects generated by communications belonging to central banks officials have become an area exploited in the recent academic literature.

Beine, Janssen and Lecourt (2009) set out to determine if communications, in general, and speeches, in particular, belonging to the central bank officials influence the Forex markets. The authors observe that certain statements have a significant influence on the exchange rate and its associated volatility.

In a high-frequency analysis on the euro-dollar currency pair, Jansen and de Haan (2007) try to determine if the ECB verbal statements were successful in backing the evolution of the euro. The authors conclude that the results point to the fact that the oral representations from the ECB had little impact in the above mentioned direction.

Hayo *et al.* (2009) employ a data set that incorporates both formal and informal communications issued by the Federal Reserve officials in the period 1998-2009. Using a GARCH approach, this research documents the effects of the U.S. monetary policy on a sample of 17 emerging stock markets. The authors find that the communications influence the returns of the above-mentioned financial assets.

Conrad and Lamla (2010) dedicate their study to the communications specific to the ECB's monetary policy. They consider the results of the Governing Council's monthly meetings and investigate their influence on the EUR-USD currency pair. They observe that the news related to future price dynamics is the most efficient in producing an impact. The authors find that interest rate surprises, either negative or positive, generate important surges in the volatility of the above-mentioned currency pair.

In an industrious approach stretching for 14 years, Born (2011) *et al.* study the reaction of stock markets to the issue of more than 1000 Financial Stability Reports and oral communications belonging to 37 central banks. The authors conclude that the launch of Financial Stability Reports has a relevant and stable effect on stock market returns and the potential to reduce volatility.

In a similar analysis to our study, Dewachter *et al.* (2014) focus on the influence of oral statements on the currency market. The authors consider this influence from the perspective of continuous volatility and discontinuous jumps and report that the communications lead to significant jumps for about an hour after the news release. Another conclusion of the study is the fact that volatility tends to decline before the present news release and then to increase after the launch of a specific statement.

In another event study approach, Călin (2015) studies the impact of numerous speeches delivered by officials belonging to four main central banks (European Central Bank, Bank of Japan, Federal Reserve and Bank of England) on a series of currency pairs. The author reports that the most relevant impact in terms of volatility was determined by the speeches on the topics of quantitative easing, Federal Reserve's tapering and financial stability.

Despite this interest that generally is focused on exchange rates or stock markets, little to no attention has been paid to the study of the possible influence of official speeches on the CDSs.

Albu *et al.* (2014b) use an event study approach that pairs the dynamics of the CEE's CDSs with a series of announcements about the ECB quantitative easing policy. The results indicate a clear impact that derives from the release of the QE announcements. Similar results can be seen in Lupu and Călin (2014) in the case of the Bank of Japan.

III. Data and Methodology

Our data consists of the five-minute dynamics of prices for the CDS sovereign contracts for the following countries: the U.S., France, Portugal, the U.K., Spain, Belgium, Italy, Germany, the Netherlands, Austria, Slovenia, Slovakia, Turkey, Estonia, Japan, Korea, China, the Russian Federation². The investigation period ranges from 29 December 2014 07:55 to 8 July 2015 15:05 and the data are summarized in Table 1.

Table 1

Descriptive Statistics

	Means	Standard Deviations	Skewness	Kurtosis
US	7.41E-06	0.007292	2.296962	71.90484
FRANCE	-5.34E-06	0.00424	0.096767	45.79651
PORTUGAL	2.18E-05	0.004035	0.875763	135.9925
UK	-4.17E-05	0.010672	0.225134	47.72454
SPAIN	-1.25E-05	0.003867	-0.18218	169.7599
BELGIUM	-2.62E-05	0.004411	1.075155	51.56646

² We also took into account sovereign CDS contracts for the Czech Republic, Poland, Hungary, Romania, Bulgaria, Slovenia and Slovakia. However, the data are less liquid and they are not fitted for an intra-day methodology as the one approached in our analysis.

	Means	Standard Deviations	Skewness	Kurtosis
ITALY	2.96E-06	0.003183	3.398434	221.7285
GERMANY	5.17E-06	0.007429	-0.85527	66.08293
NETHERLANDS	-5.78E-05	0.010227	0.416104	28.72853
AUSTRIA	1.89E-05	0.005073	0.315643	30.14517
SLOVENIA	-5.13E-06	0.000979	2.307495	392.0662
SLOVAKIA	-9.87E-05	0.004308	-35.0741	1400.117
TURKEY	-2.32E-05	0.000935	-1.16159	68.23951
ESTONIA	3.88E-07	0.001135	2.619009	371.1142
JAPAN	-1.82E-06	0.002485	-0.76868	59.5718
KOREA	2.60E-05	0.002262	0.101235	22.15306
CHINA	3.27E-05	0.001567	0.696887	22.20602
RUSSIAN F.	1.78E-06	0.001004	0.200448	56.16628

Source: Authors' computation.

The research also incorporates 175 speeches delivered by the FOMC officials between 3 January 2015 and 17 July 2015. Some of the key FOMC officials who delivered speeches included in this study are: *Yellen, Fischer, Williams, Rosengren, Brainard, Kocherlakota, Bullard, Tarullo, Powell, Mester, Evans, Lockhart, Potter, Dudley and Lacker.*

We use two methods to analyze the impact of speeches on the dynamics of the CDS contracts for the sovereign debt. These two methods rely on the decomposition of returns dynamics according to a stochastic process that allows for changes in volatilities on one hand and jump realizations on the other hand.

The changes in the values of volatilities are accounted for by means of three volatility models that are fitted on a window before each event in our analysis and used to produce forecast for an interval of twelve five-minute intervals after the announcement. The differences in volatilities are analyzed and transformed into an index that shows how much reaction was recorded in the event aftermath.

Similarly to Călin (2015), we incorporate in our event study approach three volatility models: RiskMetrics, GARCH (1, 1), and FIGARCH (1, 1). These models are explained through the following set of equations:

RiskMetrics:

$$\sigma_{t+1}^2 = (1 - \lambda) \sum_{\tau=1}^{\infty} \lambda^{\tau-1} R_{t+1-\tau}^2$$

where:

$$0 < \lambda < 1$$

GARCH:

$$\sigma_{t+1}^2 = \omega + \alpha R_t^2 + \beta \sigma_{t+1}^2 \sigma_t^2$$

$$\alpha + \beta < 1$$

where:

FIGARCH

$$\sigma_t^2 = \omega + (1 - \beta L - \phi L(1 - L)^d)\epsilon_t^2 + \beta\sigma_{t-1}^2$$

where: L is obtained from:

$$\sigma_t^2 = \omega + \sum (\lambda_i \epsilon_{t-i}^2)$$

The volatility models have been calibrated on series containing periodicity – adjusted returns. For this purpose, we used the methodology developed by Boudt, Croux and Laurent (2011).

On the other hand, the jump part of the return dynamics is accounted for by means of the Lee and Hannig (2010) specification, which consists in the computation of a jump

statistic according to $J_t = \frac{|R_t|}{\sigma_t}$ where σ_t is $\sqrt{\frac{1}{n-1}TV_t}$, n is the sample size. Under their

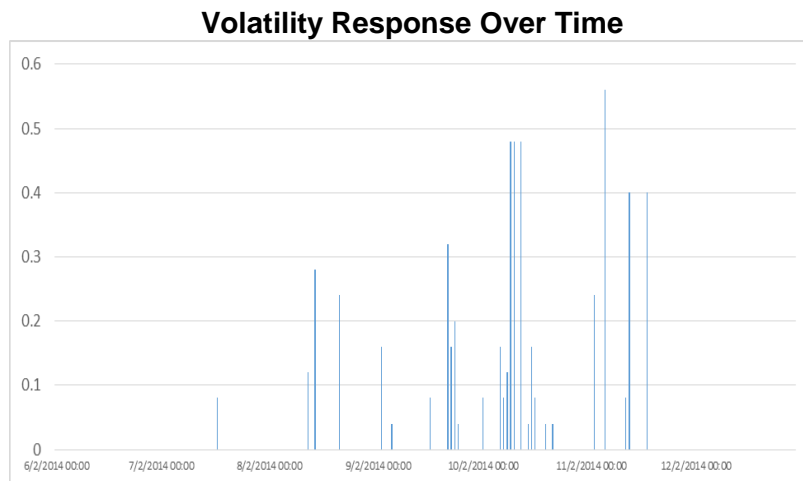
analysis, a return is considered a jump if $J_t > G^{-1}(1-\alpha)S_n + C_n$, where $G^{-1}(1-\alpha)$ is the $1-\alpha$ quantile function of the standard Gumbel distribution,

$$C_n = (2\log n) - \frac{\log(\pi) - \log(\log n)}{0.5} \text{ and } S_n = \frac{1}{0.5 \cdot 2(2\log n)}$$

Our study consisted first in the identification of the jumps for each asset in our analysis, and second in the search for announcements that took place in the same time (the same five-minute interval or the next five-minute interval) with the identified jumps. We consider that the respective announcement produced a powerful reaction in the markets if a jump took place in these two five-minute intervals.

IV. Results

Figure 1



Source: Authors' computation.

Our results report 45 cases in which the volatility index is significant and 98 cases in which a jump was recorded.

Figure 1 shows the volatility response for all assets in our sample (all the sovereign CDS contracts that exhibited a volatility response) with respect to the volatility index constructed as mentioned in the previous section. We notice the clustering of these responses at the end of 2014.

The highest impact found in this study is generated by the speech held by Governor Jerome H. Powell on the 6th of November 2014. This speech generated a volatility impact of 0.56. The communication concluded that the reforms towards OTC derivatives and central clearing are on a positive trend.

The following representative value that characterizes the magnitude for the volatility index was found for five speeches. The first of these oral communications was delivered by President Jeff Lacker on the 10th of October 2014. The intervention focused on bankruptcy for large financial institutions. Another significant speech from the point of view of our analysis was conducted on the same date by President Charles Evans and covered key aspects of the US economy, inflation and details about the Fed policy.

All the above-mentioned responses have been found for the US CDS, which is sensitive to a large set of oral interventions. In addition to this, our results show a mild response for the Canadian CDS that reacted to the oral presentations of BOC officials Poloz and Wilkins on 16 September 2014 and on 22 September of the same year, respectively.

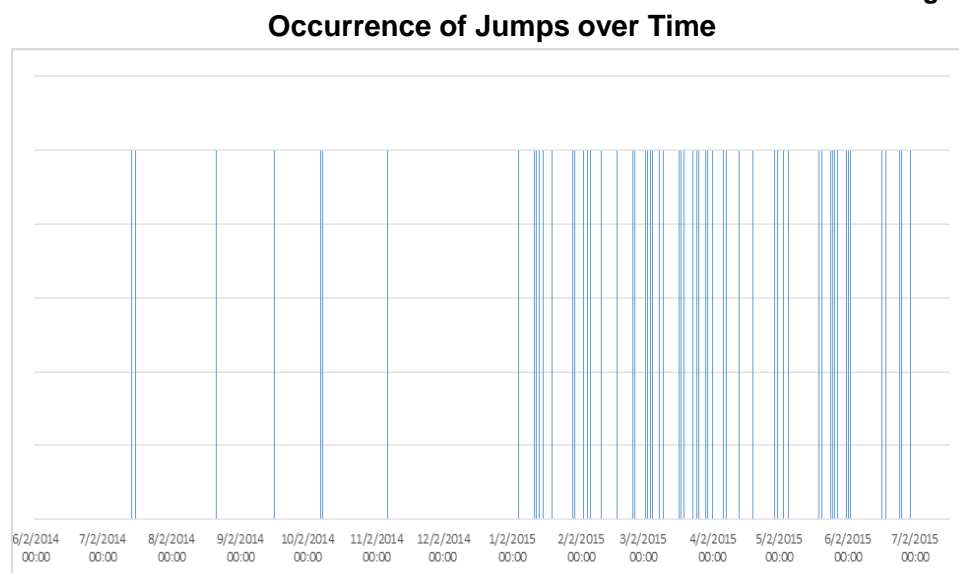
Figure 2 presents the realization of jumps during the speeches for the assets in our analysis. We notice a concentration of these jumps especially in 2015, and we also see that jumps were not accompanied by volatility responses in this time interval. Therefore, the market response generated by the analyzed speeches is powerful, but it is translated either as volatility (mostly at the end of 2014) or jumps (especially during 2015).

If in the case of the volatility approach we found responses only for the US and Canadian CDSs, the situation is different in terms of jumps. The results report at least one jump for the CDSs belonging to: Spain, Slovenia, Italy, Austria, the US, Germany and Portugal.

The highest degree of sensitivity was observed for the Slovenian CDS, which exhibits jumps in relation to a battery of 57 speeches delivered by the FOMC officials. The smallest response was observed for the German CDS that exhibits only one jump triggered by the speech of Chair Janet L. Yellen, delivered on the 6th of May 2015 on the topic of the soundness of the financial system.

Our methodology allows the computation of a measure of the jump power or size for the cases when jumps were found. The strongest jump was detected for the Slovenian CDS and derives from the speech of Fed Vice Chair Fischer, which took place on 21 May 2015 at the European Central Bank Conference held in Portugal.

Figure 2



Source: Authors' computation.

Other oral interventions that generated incredibly high jumps were delivered during April and May of 2015 by the following officials: Powell, Dudley, Mester, Williams and Tarullo. Moreover, the top 22 positions in terms of jump magnitude are observed for the Slovenian CDS. Other powerful responses were spotted for the Spanish, Italian and Portuguese CDSs.

V. Conclusions

This paper tried to determine the possible impact of speeches delivered by the FOMC officials on sovereign CDSs. Our approach was oriented towards both volatility and the jumps that might derive from these communications.

In terms of volatility, we observe relevant responses only for the US and the Canadian CDSs. The most considerable impact was found for speeches that cover elements such as: reforms in central clearing, bankruptcy and the evolution of the US economy.

Despite this low volatility response, we found jumps for seven CDSs: Spain, Slovenia, Italy, Austria, the US, Germany and Portugal. Among these, the highest degree of sensitivity was found for Slovenia. Besides exhibiting jumps to a large number of speeches, for the case of Slovenia we found the most powerful jumps.

Our results indicate a concentration of volatility towards the end of 2014 and a concentration of jumps in 2015. Given this separation we conclude that though the market reaction to FOMC speeches is strong, the influence is translated either as volatility or jump.

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