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The intra-day impact of communication on euro-dollar volatility and jumps☆

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A B S T R A C T

In this paper, we examine the intra-day effects of verbal statements and comments on the FX market uncertainty using two measures: *continuous volatility* and *discontinuous jumps*. Focusing on the euro-dollar exchange rate, we provide empirical evidence of how these two sources of uncertainty matter in measuring the short-term reaction of exchange rates to communication events. Talks significantly trigger large jumps or extreme events for approximately an hour after the news release. Continuous volatility starts reacting prior to the news, intensifies around the release time and stays at high levels for several hours. Our results suggest that monetary authorities generally tend to communicate with markets on days when uncertainty is relatively severe, and higher than normal. Disentangling the US and Euro area statements, we also find that abnormal levels of volatility are mostly driven by the communication of the Euro area officials rather than US authorities.

☆ The views expressed in this paper are solely our own and do not necessarily reflect those of the National Bank of Belgium (NBB).

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"….*The euro area has a shared interest in a strong and stable international financial system, as excess volatility and disorderly movements in exchange rates have adverse implications for economic and financial stability.*"

J. C. Trichet, December 08, 2010, Official Press Release

1. Introduction

Do financial markets react to communication? Recent empirical research has focused on this question and established that oral interventions are an important source of information for the markets. Surveying the literature, Blinder et al. (2008) conclude "*communication can be an important and powerful part of the central bank's tool since it has the ability to move financial markets*".

Most of the studies in this literature examine whether monetary officials and policy-makers are indeed able to move the foreign exchange market and financial markets more broadly in the right direction by communicating verbally (see e.g. Beine et al., 2009; Conrad and Lamla, 2010; Fratzscher, 2008a, b; 2006; Jansen and De Haan, 2007, 2005; Rosa and Verga, 2008, 2007 among others). In this regard, the effectiveness of verbal policy announcements has been tested in different ways, focusing on the impact of oral interventions on both the level of the exchange rate and its volatility. Although most of these studies find that the statements are successful in affecting the level, the effect on volatility is more ambiguous. While some papers conclude that communication can effectively "calm disorderly market conditions" (e.g. Beine et al., 2009; Fratzscher, 2006; Gnabo et al., 2009), many reach the opposite conclusion (see Jansen and De Haan, 2007, 2005 among others).

From the policy-makers' standpoint, two forms of currency market responses are desirable. First, exchange rates should adjust to news contemporaneously, so that the effects on levels become transitory. In that sense, prolonged adjustment processes and long-lasting impacts may create turbulence, and even deteriorate the perception of market participants (Gnabo et al., 2012). Second, officials expect communication to lower exchange rate volatility and thus resolve market uncertainty. Nevertheless, if agents tend to interpret the same news differently, volatility is likely to surge some time after the release of an announcement (Evans, 2005). Even though market participants observe the news simultaneously and have similar views, unclear statements with ambiguous information could also prompt volatility in foreign exchange markets. Our objective is therefore to better understand how and when market uncertainty reacts to verbal statements of monetary officials.

In particular, we depart from the existing literature in three ways. First, we consider two measures of market uncertainty: *discontinuous jumps* and *continuous volatility*. While the "jumps" measure represents the sudden market reactions and tells us whether the news adjustment is contemporaneous or not, the "continuous volatility" measure describes the persistent market response to communication events. Second, we use high-frequency exchange rate data, which allows us to process more information in order to measure market uncertainty at every instant of time. Third, we focus on both US and Euro area exchange rate communication policies. We distinguish the intra-day influence of the US and Euro area statements and analyze how currency market responds to different source of verbal interventions.

In general, studies use volatility as a measure of uncertainty and ignore the presence of jumps. Proceeding this way, however, may be incorrect and/or incomplete for at least three reasons. First, as Carnero et al. (2007), Charles and Darné (2005), Franses and Ghijsels (1999) and Muller and Yohai (2008) show, Gaussian quasi-maximum likelihood (QML) estimates of GARCH models, subject to the presence of additive jumps, tend to overestimate the volatility for the days following the jumps, and produce also upward-biased estimates of long-term volatility. Second, one can improve volatility forecasts by removing jumps from current and lagged volatility as documented in Andersen et al. (2007a) and Neely (1999). Third, taking the presence of jumps into account allows us to disentangle continuous movements of market volatility from sudden and short-lasting spikes. This flexibility—-which we adopt in this paper—has important economic and financial implications: jump events represent tail risk and market fear, which require a premium that cannot be explained by continuous volatility movements (see e.g. Bollerslev and Todorov, 2011a, b).