Public news announcements and quoting activity in the Euro/Dollar foreign exchange market

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ARTICLE INFO

ABSTRACT

The effect of public news announcements on dealers' quoting activity is analyzed with the multivariate double autoregressive conditional Poisson model. Quoting activity is measured by the frequency of price revisions in the Euro/Dollar foreign exchange market. The multivariate double autoregressive conditional Poisson model is designed for time series of count data. It is based on the double Poisson distribution, which can be both over- and underdispersed. The main findings are first a significant interaction between dealers' quoting activity, which confirms hot potato trading. Second, news announcements have a different impact on the quoting activity of different banks. Third, impulse–response functions to news announcements show the dynamic nature of the reaction to these news releases.

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1. Introduction

Unlike stock markets, foreign exchange markets are characterized by a very low degree of transparency. Trading is performed by dealers who receive orders from their customers and trade amongst themselves, either via direct bilateral and secret conversations or through brokers (voice-brokered trades) and electronic brokerage systems (like EBS and Reuters D2000-2), where orders are immediately disclosed to all members, yet anonymous. In direct inter-dealer trading, the quantities exchanged or even whether a transaction took place is only known to the transacting parties, but is not known by other market participants. Every dealer observes only his own trades. Despite this lack of transparency, which reduces the information content of prices (Lyons, 1997), it is well established that news announcements have an impact on exchange rates. Ito and Roley (1987), Engle et al. (1990), and Ito et al. (1992) examine the effect of news on the exchange rate. More recently Andersen et al. (2003) found an effect of news on returns, while Andersen and Bollerslev (1998), DeGennaro and Shrieves (1997) to name just a few, obtained an effect on volatilities. DeGennaro and Shrieves (1997) and Melvin and Yin (2000) found an effect on trading activity, while Bauwens et al. (2005) found that certain categories of news announcements have a positive impact on volatility, while others do not seem to matter.

In this paper we take a somewhat different stand from the rest of the literature and we analyze the effect of news announcements on the quoting activity of individual dealers, while allowing for inter-dealer effects. The contribution of this paper is threefold. First, we use a model of multivariate dynamic counts, developed by Heinen and Rengifo (2007), that is suited for the analysis of the interaction between the quoting activity of individual traders in the presence of new announcements. Second, using this model we find significant interaction amongst individual banks, which confirms the presence of hot potato trading (Lyons, 1997). Third, we analyze the dynamic response of individual banks to different news

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releases, by looking at impulse–response functions that take into account the interactions amongst them. We now turn to these points in more detail.

First, we work with data on the quoting activity of individual dealers, that is measured by the number of quote updates of each dealer in 5 min on an electronic screen. We make use of the code identifying the bank that accompanies each indicative quote in our FXFX data in order to build our series of quote updates for each bank. We apply a model of multivariate dynamic counts, developed by Heinen and Rengifo (2007), that is suited for the small means of our data. This model uses a VARMA structure for the conditional means of all series that allows for cross-dependence between dealers, while at the same time capturing the effect of exogenous variables, in our case news announcements and intra-daily seasonality. We use a detailed classification of news announcements into nine categories, due to Bauwens et al. (2005), which improves on previous studies. The model allows for a different impact of any given news announcement on the frequency of quote revisions of each bank. In addition to the punctual effects of news on quoting activity, we take into account the autocorrelation of each dealer's quoting activity, as well as cross-correlation due to inter-dealer effects. This corresponds to the idea that the quoting activity of any dealer can depend on the lagged quoting activity of all the others. Finally, we find that using a time-varying count model with the double Poisson distribution of Efron (1986) is important, since we find some overdispersed and some underdispersed distributions.

Second, by looking at a sample of major dealers on the Euro/Dollar exchange rate, and by using a multivariate double autoregressive conditional Poisson model, we find that there are significant inter-dealer effects. We interpret this as being evidence of hot potato trading, as suggested by Lyons (1997). Hot potato trading refers to the repeated passing of inventory imbalances between dealers. Dealers are risk-averse agents who do not want to hold large open positions, especially overnight, that would subject them to important price risk. As a consequence, whenever a dealer receives an order, he seeks to reestablish his previous equilibrium by passing on unwanted positions to a fellow dealer. This can lead to a chain of transactions between dealers. One way that a dealer has at its disposal when he wants to get rid of inventory is to offer a more favorable quote in a particular direction, in the hope of attracting a counterpart. These quote updates are precisely the quoting activity that we are working with. In order to clarify the link between hot potato trading and the quoting activity we study in this paper, we consider the following illustrative example (one of the examples considered in Evans (2002)). Suppose dealer A receives a customer purchase order for 10 million of foreign currency that the dealer fills from his existing inventory. If the dealer believes that the order contains no price-relevant information, he may respond in one of three ways. He can (1) simply wait for another customer with an offsetting sell order, (2) actively replenish his inventory by either initiating a direct bilateral trade or by submitting an order to a brokerage system, or (3) passively replenish his inventory by raising the prices he quotes when another dealer initiates a bilateral trade. If we consider our quoting activity as a proxy for trading, then options (2) or (3) will lead to a transaction for our dealer. If we consider that indicative quotes correspond to signalling a willingness to trade to get rid of unwanted inventory, then our trader will want to do this in order to increase the likelihood that option (2) happens quickly. Of course, under option (3), there is now another dealer that has unwanted inventory and will try to pass on the hot potato to someone else by one the three aforementioned options.

Third, we analyze the impulse–response function of individual banks' quoting activity to news releases. This highlights the dynamic reaction of individual banks to news announcements. Individual banks' response to news in the post-announcement exhibit different patterns, both in the magnitude and in the direction of the response. Our findings are that in most cases the effect of news dies out after about 30–45 min, which is consistent with findings of Chaboud et al. (2008).

The paper is structured as follows. In Section 2 we present the literature about the effect of news announcements on quoting activity as well as a newer literature on inter-dealer effects. In Section 3 we present the model, Section 4 presents the data, Section 5 the results, and the last section concludes.

2. Quoting activity

During the trading period FX dealers get real time information through electronic screens about public news announcements as well as other banks' quotes. It is well documented that dealers revise their quotes in order to reflect their reaction to public news announcements (Andersen et al., 2003) or their detention of private information coming from their customers' order flow (Lyons, 1995; Evans and Lyons, 2002; Cao et al., 2006) or from bilateral inter-dealer trades (Evans, 2002). In addition DeGennaro and Shrieves (1997) and Bauwens et al. (2005) show that quoting activity (assimilated to the activity of price revision) increases return volatility. They also use quoting activity adjusted from its seasonal component as a proxy for private information occurring from customers' order flow. The first subsection deals with the link between quoting activity and news announcements. In the second we provide a brief summary of a relatively new literature that analyzes individual banks and the interactions between them.

2.1. News announcements and quoting activity

News announcements and quoting activity were analyzed in several studies. DeGennaro and Shrieves (1997) use three categories of news announcements (scheduled and unscheduled macroeconomic news announcements as well as interest rate reports) and six different periods around the event and analyze their impact on quoting activity. They find a significant effect of all three categories of news, but at different times relative to the announcement. Melvin and Yin (2000) work with