

The European Central Bank's Minimum Bid Rate and Its Effect on Major Currency Pairs

Ikhlaas Gurrib

Abstract—The paper looks at the effects of Minimum Bid Rate on three major currency pairs namely the Australian dollar against the US dollar, the Euro against the US dollar, and the British Pound against the US dollar. The minimum bid rate is announced by the European Central Bank and is considered by traders to have a major impact on the financial markets. Both a one minute data interval and a five minute data interval is used over a time period of four years. Findings suggest the effects of the specific news under analysis to be insignificant for a trader to benefit from the fluctuations in the three major currency markets. The impact of the announcement tends to be more significant on the Euro/USD pair relative to the other two currency pairs both on the one minute and five minute analysis.

Index Terms—Currency pairs, European central bank, minimum bid rate.

I. BACKGROUND TO STUDY

Extensive literature exists regarding the importance of financial markets. Essentially, financial markets are places in which people and entities can trade financial securities, commodities, and other fungible items of value at low transaction costs and at prices that reflect supply and demand. They trade financial instruments which include mainly securities and derivatives. The key risk determinants of these securities are volatility of the market, performance of the organizations issuing these securities and individual risks. There are many factors that affect the stock price movements in the financial markets including the company's performance, economic conditions, demand and supply in the industry, market sentiment among others. Along with these key economic variables, politics, events occurring in the industry or market or in the company also play a major role in stock price movements of the company. Any good or bad news about the company, any major policy change in the nation or economy or industry, any change in the corporate governance structure among other news would lead to immediate effects on the stock prices. A study of events analysis and volatility relationships found that including macroeconomic fundamentals into volatility models account for between 10 % and 35 % of one-day ahead volatility prediction [1]. Similarly, another study looking at events analysis using recursive model estimation, found major economic events in the 1990s to have no significant effects on hedgers' and speculators' trading decisions and risk attitude [2]. While [3] findings support that market events

have significant impact on the stock price movements, [4] showed that in major US futures markets, hedger and speculator volatilities have shown a tendency to decay over time in response to shocks, supporting the belief that both players are informed and react well to news volatility. Similarly, [5] showed that a significant impact of volatility on the stock prices can only take place if shocks to volatility persist over a long time.

As discussed above, market events and industry changes tend to have some impacts, significant or not, on the financial markets. Major news announcements made by the Central banks of various nations or policy changes affecting the inflation rates and other economic parameters would have a significant impact on the financial markets. Savor and [6] observed that the average returns of the US financial stock markets were performing higher on those days where macroeconomic variables were declared to the public. These factors include consumer price index, employment rate and statistics, decisions made by Federal committee on financial markets among others. Statistically, it is observed that 60% of the overall returns from the financial markets are earned just on 13% of the trading days. This paper discusses the effects of major news announcements from the European Central Bank. Since there are many variables that affect financial markets globally, the scope of this paper will analyse effect of the Minimum Bid Rate, considered to have relatively high impacts on currency markets [7].

There are several ways to measure the effects of major news announcements in financial markets, and this paper will focus mainly on the foreign exchange rate between AUD and the United States Dollar (hereinafter known as USD), and between the EUR and the USD. The measurement will be in percentage change and it will be a comparison between the exchange rate at the time of the announcement and the exchange rate one minute later. Extensive literature on the use of high-frequency financial data are provided by [8] and [9]. The findings tend to be mix, where in some cases, one minute is considered enough time to measure the reactions of the market since most of the tools used today are automated and work on algorithms and react quickly to the announcements, while in other cases, it is merely an indication of where the market is heading but is not enough time to provide information about the full reaction of the market. The one minute gap is used to be in line with more recent research using high frequency data, while the five minute gap is to check the continuation of any significant variations found in 1 minute data analysis. Currently, the fifteen most traded currencies around the globe are United States Dollar, Euro, Japanese Yen, Pound Sterling, Australian Dollar, Swiss Franc, Canadian Dollar, Mexican Peso, Chinese Yuan, New Zealand Dollar, Swedish Krona,

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Ikhlaas Gurrib is with the Canadian University of Dubai, Sheikh Zayed Road, PO Box 117781, Dubai, United Arab Emirates (e-mail: ikhlaas@tud.ac.ae).

Russian Rouble, Hong Kong Dollar, Singapore Dollar, and the Turkish Lira, respectively, while all the other currencies together form 12.2% of the daily trades in currencies [10]. Announcements that had more than one announcement at the same time or within a one minute gap were excluded because including them to ensure robustness in the analysis stage. The rest of the paper provides the research methodology and data composition, the analysis section and some conclusive remarks.

II. DATA AND RESEARCH METHODOLOGY

While there are a significant number of major news announcements announced globally during most days of the calendar, the scope of this study will focus mainly on the Minimum Bid Rate maintained by the European Central Bank (ECB) which is announced at 7.45am on 1st Aug 2013 whose currency is in terms of Euros. Central banks play key role in determining the economy of the nation and the announcements made by them are mostly related to interest rates. They tend to have some impacts, significant or not, on various diversified industries and thus affects companies overall financial positions, in turn showing significant changes in the stock prices of these companies in the financial markets [3]. Further, since many factors and variables of financial markets are affected with the events, we have chosen only those factors which have been significantly affected due to the global events in these financial markets and which can be easily observed or noted from the financial markets. This includes the foreign exchange rate of AUD/ USD (Australian Dollar to United States Dollar), EUR/ USD (Euro to United States Dollar) and GBP/ USD (Great British Pound to United States Dollar) as collected from the Fore factory, which is one of the major foreign currency data providers [7]. Secondary data regarding the currency pairs (1 minute and 5 minute intervals) was collected from Gain Capital proprietary data. The data sample has been set from January 2010 to December 2013 to allow for sufficient statistical inferencing.

As mentioned above, market events or industry changes affect huge number of factors or variable in the financial markets. This study has observed the effect of market events by observing the foreign exchange rate of AUD with USD, EUR with USD and GBP with USD at the intervals of 1 minute and 5 minutes respectively. It is observed by major foreign market exchange researchers that trading currencies including Euro (EUR), United States Dollar (USD), Australian dollar (AUD), Japanese Yen (JPY), Pounds (GBP), Swiss Francs (CHF), Canadian dollar (CAD), Chinese Yuan (CNY) have accepted the 1 minute interval changes to assess the impact of market events [11]. Due to the presence of more than one major announcement being released at the same time, all minimum bid rate announcements which are in conflict with other announcements being release simultaneously, are being disregarded for later analysis.

The Minimum Bid Rate of the ECB

Also called the Refi rate (refinancing rate) or Repo rate, it is the interest rate at which refinancing operations are

charged which is the main source of liquid cash to the banking sector of the region. The rate is considered to have a significant impact causing movement in the financial markets. However, the Minimum Bid rate is also dominated by the ECB press conference held 45 minutes later on the same day. This rate is also announced on the first Thursday of every month, 45 minutes post the announcement of the Official bank rate of GDP. Thus, it is announced monthly on first Thursday at 6.45am for the first 7 months of the financial year starting from April month and at 7.45am for the next 5 months from November month to March [12]. It is observed from the data and the trend depicted below in Fig. 1 that the Minimum Bid Rate has been decreasing since 2011, October. It has initially seen an increase from 2010 to 2011 but after October 2011, it has been constantly decreasing after every few months. The current bid rate is observed to be at 0.5% equals to the Official Bank rate of GBP. The effect of the stock market prices is explained in the below section on the basis of impact of EUR/ USD exchange rate variations.

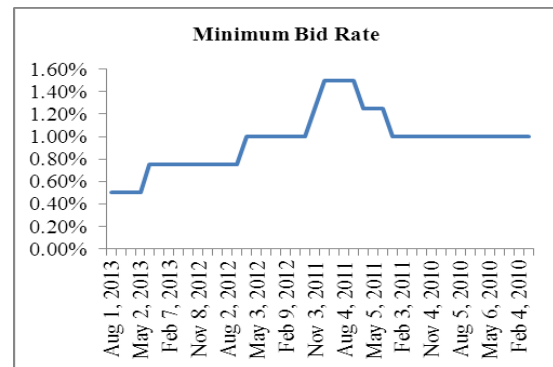


Fig. 1. Trend of minimum bid rate.

III. ANALYSIS

Overall the exchange rates have been varying from the year 2010 to 2013 as depicted in Fig. 2. It can be observed that on average the Great British Point has been losing its value with increasing exchange rate from 2010 to 2011. Similarly, the Euro has performed well between 2011 to 2012 while the value again is depriving as compared to USD in 2013. The AUD (Australian dollar) has been improving its value and is performing well compared to the other two currencies in reference to the USD (United States dollar) especially in 2013. Considering the average performance, the 2010-11 has been a depriving phase while 2011 onwards it has tried to keep its value in level with the USD and finally in 2013, it started to perform over USD with the exchange rate decreasing [13].

As the events are announced by the Central Banks and they are occurring past 45 minutes from each other event, there is no scope of conflict among these events and their announcements. However, there existence of possible conflicts with other macroeconomic announcements including consumer price index statistics, employment detail, among others needs to be cross checked. Although not reported here, it was observed that the event of Minimum bid rate announcement seems to be less conflicted compared to other announcements such the cash rate announced by the Reserve Bank of Australia and the Official Bank Rate

announced by the Bank of England. This provides support as to why this particular event is chosen among other major announcements from central banks globally. Thus, the event of Minimum Bid rate occurring monthly at 6.45 am or 7.45 am depending on the month of the year is considered to observe the impact on financial markets. For the analysis, the exchange rates of AUD/ USD, EUR/ USD and GBP/ USD is collected at 6.45am, 6.46am and 6.50am for the months of April to October while for the months from November to March, exchange rates at 7.45am, 7.46am and 7.50am are collected.

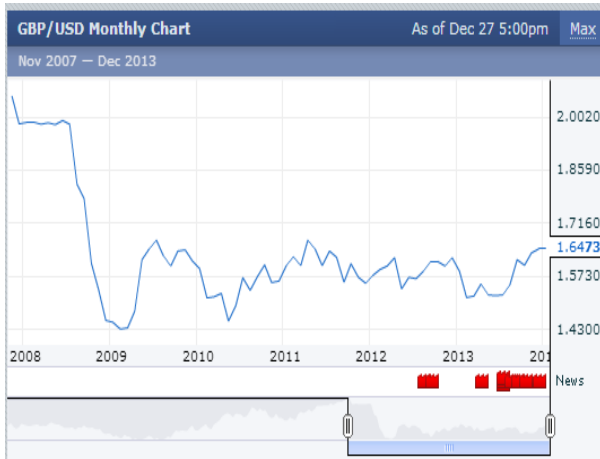


Fig. 2. Charts depicting the monthly exchange rate of GBP/USD, EUR/USD & AUD/USD (2010-2013). source: forex (2014).

From Table I, it is clear that even Australian dollar has not shown very significant changes with the announcements of Minimum bid rate by European Central Bank. The % changes below have a maximum value of 0.03% and hence there is no significant impact on financial markets of Australia with the announcement of Bid rate in Europe. Although not reported here, it can be observed from the charts as well that there is no much difference among the exchange rate values in 1min and 5min intervals after the announcement of bid rate by ECB. This is in line with earlier findings that there is no significant impact on announcement of Bid Rate by the ECB on the financial markets measured by the exchange rates of AUD, GBP and EUR.

Further analyzing the percentage change in exchange rates in all the three exchange rates with respect to the announcement of Bid Rate by ECB, it can be observed that EUR/ USD exchange rate has been significantly affected by the news announcement compared to the AUD and GBP exchange rates. Fig. 3 and Fig. 4 below depict the percentage change in the exchange rates of all three currencies considered with respect to the announcement of Bid Rate by ECB. These findings are in line with [14] who found that European Central Bank policy measures may have had short-run effects on bond returns and the exchange rate, but no intended influence on stock prices, except for Italy.

TABLE I: IMPACT OF MINIMUM BID RATE ANNOUNCEMENT ON EUR/ USD

Year	Date	Time of Announcement	EUR/ USD			% change after 1min	% change after 5 min
			at time	after 1 min	after 5min	EUR/ USD	EUR/ USD
2013	Aug 1, 2013	6:45 AM	1.32398	1.32405	1.32398	0.0053%	0.0000%
2013	May 2, 2013	6:45 AM	1.31765	1.31755	1.31752	-0.0076%	-0.0099%
2013	Apr 4, 2013	6:45 AM	1.28045	1.28063	1.28084	0.0141%	0.0305%
2013	Mar 7, 2013	7:45 AM	1.30253	1.30332	1.30182	0.0607%	-0.0545%
2013	Feb 7, 2013	7:45 AM	1.35665	1.35701	1.35618	0.0265%	-0.0346%
2013	Jan 10, 2013	7:45 AM	1.30933	1.31103	1.31053	0.1298%	0.0916%

IMPACT OF MINIMUM BID RATE ANNOUNCEMENTS IN 2013 ON GBP/ USD

Year	Date	Time of Announcement	GBP/ USD			% change in 1min	% change in 5min
			at time	after 1 min	after 5min	GBP/USD	GBP/USD

2013	Aug 1, 2013	6:45 AM	1.51933	1.51938	1.51914	0.0033%	-0.0125%
2013	May 2, 2013	6:45 AM	1.55817	1.55826	1.5581	0.0058%	-0.0045%
2013	Apr 4, 2013	6:45 AM	1.50623	1.50612	1.50660	-0.0073%	0.0246%
2013	Mar 7, 2013	7:45 AM	1.50614	1.50604	1.50555	-0.0066%	-0.0392%
2013	Feb 7, 2013	7:45 AM	1.57120	1.57106	1.57108	-0.0089%	-0.0076%
2013	Jan 10, 2013	7:45 AM	1.60454	1.60493	1.60505	0.0243%	0.0318%

IMPACT OF MINIMUM BID RATE ANNOUNCEMENTS IN 2013 ON AUD/ USD

Year	Date	Time of Announcement	AUD/ USD			% change in 1min	% change in 5min
			at time	after 1 min	after 5min	AUD/ USD	AUD/ USD
2013	Aug 1, 2013	6:45 AM	0.89782	0.89805	0.89771	0.0256%	-0.0123%
2013	May 2, 2013	6:45 AM	1.02409	1.02416	1.02384	0.0068%	-0.0244%
2013	Apr 4, 2013	6:45 AM	1.0404	1.04053	1.04079	0.0125%	0.0375%
2013	Mar 7, 2013	7:45 AM	1.02613	1.02604	1.02556	-0.0088%	-0.0555%
2013	Feb 7, 2013	7:45 AM	1.03359	1.0334	1.03341	-0.0184%	-0.0174%
2013	Jan 10, 2013	7:45 AM	1.05722	1.05731	1.05727	0.0085%	0.0047%

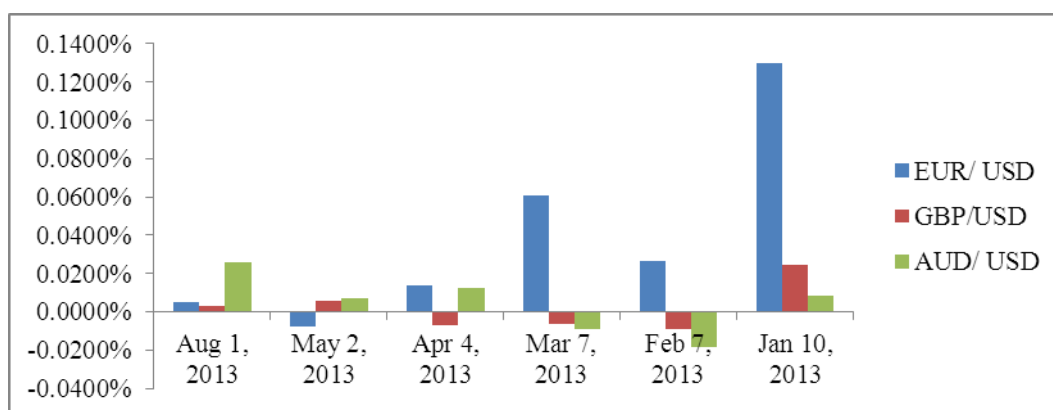


Fig. 3. Bar chart depicting the % change among all three currencies exchange rates after 1min of announcement of bid rate.

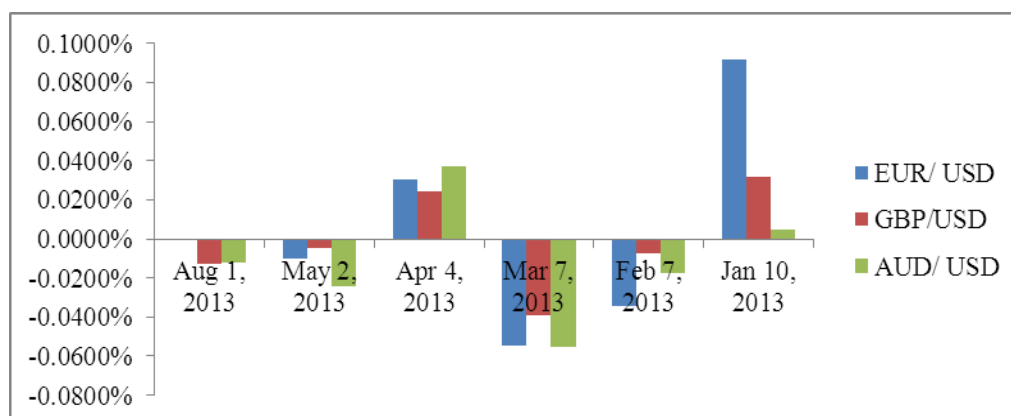


Fig. 4. Bar chart depicting the % change in exchange rates of all three currencies after 5min of announcement of bid rate by ECB.

IV. CONCLUDING REMARKS

From the discussions made and observations assessed above, it can be concluded that the Minimum Bid Rate issued by the European Central Bank seems to have some impacts on the financial markets. However, the significance of the impact is very less on external markets relative to internal markets. For instance, the above study has assessed the impact of announcement of Minimum Bid rate by ECB and findings tend to suggest the Euro currency pairs to be more affected compared to the British and Australian currency

pairs. Overall findings are still insignificant for a trader to carry out some arbitrage trading among the currencies. Future research could look at higher frequency data since more and more HFT (High Frequency Trading) systems are being used recently. Another avenue would be to investigate qualitative major announcements issued by the European Central Bank such as the ECB Press Conference which is released on a monthly basis. Comparative analysis with other countries' reserve banks similar announcements like Ben Bernanke's Press Conference for the US Federal Reserve Bank would add value towards analysing the effects of news

on global financial markets.

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Ikhlaas Gurrib is currently the MBA finance program coordinator at the Canadian University of Dubai, which is ranked no. 1 in Dubai for its MBA program. He is a holder of a Ph.D. degree in economics and finance from Curtin University, Australia, together with a MPA (master degree of professional accounting) and a MFin (master degree of finance) from Victoria State University, Australia. He held various academic positions in Australia, Saudi Arabia and UAE. He is a senior associate of the Financial Services Institute of Australasia (FINSIA) and a member of the American Finance Association (AFA).