Unconventional monetary policy and the dollar-euro exchange rate: Further evidence from event studies

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Abstract

This paper examines the impact on the US dollar-Euro (USD-EUR) exchange rate of the unconventional monetary policy conducted by the US Federal Reserve (Fed) and the European Central Bank (ECB). To that end, we employ an event study approach using daily the USD-EUR exchange rate for the period from January 2, 2007 to January 31, 2015. Our results indicate that the announcement and subsequent implementation of such measures by the ECB would have caused an appreciation of the dollar, while those by the Fed would have caused a depreciation of the dollar.

JEL classification numbers: C32, E52, E58, F31, G15.

KEY WORDS: Quantitative easing, Unconventional monetary policy, Announcements, Federal Reserve, European Central Bank. Exchange rates.

I. Introduction

In the wake of the global financial crisis and the subsequent recession, the US Federal Reserve (Fed) and the European Central Bank (ECB), in addition to conventional measures such as lowering target interest rates, implemented a range of unconventional monetary policies, such as forward guidance, quantitative easing (QE), and target asset purchases.

In the companion paper (Sosvilla-Rivero and Fernández-Fernández, forthcoming), we examined the impact on the US dollar-Euro (USD-EUR) exchange rate such unconventional monetary policies making use of time series analysis.

In this paper we offer further evidence on such impact adopting an event study approach by identifying monetary policy announcements as events. We rely on central bank announcements and events identified in preceding event studies on unconventional monetary policies (Table 1).

[Table 1 here]

The paper is organised as follows. Section II presents the econometric methodology, while Section III describes the data set and reports the empirical results. The paper ends with some concluding remarks.

II. Econometric methodology

Standard event study methodology is used to determine the excess returns (see, eg, MacKinlay, 1997).

In particular, abnormal returns will be analyzed at different time points using the average adjusted returns (Brown and Warner, 1980 and 1985)

$$A_t = R_t - \overline{R}_t$$

$$\overline{R}_t = \frac{1}{30} \cdot \sum_{t=-31}^{-1} R_t$$

where R_t is the observed return in the USD-EUR exchange rate in day t (computed as the logarithmic difference in its price between t and $t-1$) and A_t is the excess return in day t.

With this indicator, we try to approximate what extent, after the announcement under study, the percentage changes in the USD-EUR exchange rate deviate from its average performance during the previous six weeks.

III. Data and empirical results

We use daily data for the USD-EUR exchange rate[1] for the period from January 2, 2007 to January 31, 2015. Exchange rate data came from the ECB Statistical Data Warehouse.

Tables 2 and 3 report the results for the ECB and the Fed, respectively. As can be seen, we study the impact of the announcement and subsequent implementation within a maximum of 40 days around the announcement day. This allows us to isolate the instant effect (the same day of the announcement) and the impact in other points of time: 10 and 20 days before the announcement (to evaluate the possible anticipation by market participants, that could be relevant for the design of an adequate and timing communication policy) and 10 and 20 days after the announcement (to appraise the subsequent reaction of the markets).

Results in Table 2 suggest that the initial long-term refinancing operations in 2008 did not caused a depreciation of the Euro with respect to the US dollar, while the enlargement made a year later appears to have caused reaped positive results, namely the day of the announcement and the 10 and 20 days. Moreover, it seems that the successive programs of purchases of covered bonds have been effective, while the OMT, conducted in 2012, had recorded particularly strong results. Finally, the last announcement by the ECB indicating its intention to expand the asset purchase program would have not achieved the expected results, possibly due to anticipation by the market participants.

[Table 2 here]

An advantage of our event study test is that it focuses explicitly on how the stock price reaction to foreign direct investment is related to intangible assets present at the time

[1] Note that an increase in the exchange rate implies a depreciation of the national currency (the US dollar) and an appreciation of foreign currency (the Euro).

when the foreign investment takes place. The interpretation of causality running from the possession of intangible assets to the value of international expansion is thus unambiguous.

We relate stock price movements upon the announcement of a foreign expansion to variables which indicate the presence or absence of intangible assets. The event date is defined as the date when the acquisition news first appears either in the Dow Jones News Retrieval Service or in the Wall Street Journal Index.

The persistence of both positive and negative abnormal performance following simulated events is also a regularity we identify in our survey of the long-horizon literature.

Regarding the Fed´s announcements, results in Table 3 suggest that the round of QE conducted by the Fed would have had broadly positive results. For the first program (QE1), we can highlight particularly favorable results after the announcement of the Federal Open Market Committee (FOMC) of its intention to purchase agency mortgage-backed securities (MBS), agency debts and Treasury securities at the end of 2008. The second program would have been particularly successful in the months of September and October 2010, following statements about inflation and the Fed will intend to further relax monetary policy. Regarding the third and final program of QE, our results indicate that had generally positive but more stable over time effects. In contrast to the positive overall trend presented by these data, include unfavorable results recorded following the announcement in September of 2011, an expansion program of buying long-term assets, which are strong evidence phenomenon of anticipation by market players. These results are consistent with those obtained by Meinusch and Tillmann (2015) which, using data from use data from Twitter, the social media application, to quantify changes in peoples' beliefs about monetary policy, finding that a percivied forthcoming announcement of asset purchases by Fed s lead to a significant increase in the exchange rate of the dollar.

[Table 3 here]

IV. Concluding remarks

We offer further evidence on the effect of the quantitative easing announcements by the ECB and the Fed on the USD-EUR exchange rate, using daily data for a period from January 2, 2007 to January 31, 2015 and applying event study methodology.

Our results indicate that the announcement and subsequent implementation of such measures by the ECB would have caused an appreciation of the dollar, while those by the Fed would have caused a depreciation of the dollar.

The study sheds light on the importance of explicitly communicating the unconventional monetary policy measures to avoid exceptional market volatility

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Table 1: Event announcements

Date	Country	Event	Action
28/03/2008	ECB	LTRO	Governing Council Press Release
15/10/2008	ECB	FRFA	Governing Council Press Release
25/11/2008	FED	QE1	FOMC Statement
01/12/2008	FED	QE1	Bernanke Speech
16/12/2008	FED	QE1	FOMC Statement
28/01/2009	FED	QE1	FOMC Statement
18/03/2009	FED	QE1	FOMC Statement
07/05/2009	ECB	CBPP/LTRO	Governing Council Press Release
12/08/2009	FED	QE1	FOMC Statement
23/09/2009	FED	QE1	FOMC Statement
04/11/2009	FED	QE1	FOMC Statement
10/05/2010	ECB	SMP	Governing Council Press Release
30/06/2010	ECB	CBPP/LTRO	Governing Council Press Release
10/08/2010	FED	QE1	FOMC Statement
27/08/2010	FED	QE2	Bernanke Speech
21/09/2010	FED	QE2	FOMC Statement
12/10/2010	FED	QE2	FOMC minutes released
15/10/2010	FED	QE2	Bernanke Speech
03/11/2010	FED	QE2	FOMC Statement
22/06/2011	FED	QE2	FOMC Statement
21/09/2011	FED	Maturity Extension Program	FOMC Statement
06/10/2011	ECB	CBPP2	Governing Council Press Release
08/12/2011	ECB	LTRO	Governing Council Press Release
20/06/2012	FED	Maturity Extension Program	FOMC Statement
02/08/2012	ECB	OMT	ECB Press Conference
22/08/2012	FED	QE3	FOMC minutes released
31/08/2012	FED	QE3	Bernanke Speech
06/09/2012	ECB	OMT	Governing Council Press Release
13/09/2012	FED	QE3	FOMC Statement
12/12/2012	FED	QE3	FOMC Statement
22/01/2015	BCE	Expanded asset purchase programme	ECB Press Conference

Source: Websites of the European Central Bank (ECB) and the Board of Governors of the Federal Reserve System (Fed)

Notes: CBPP=Covered bond purchase programme

FRFA= fix-rate, full-allotment operation

LTRO= Long-term Refinancing Operation

OMT=Outright Monetary Transactions

QE=Quantitative easing

FOMC= Federal Open Market Committee

Table 2: Abnormal returns after announcements by the BCE

	28/03/2008	15/10/2008	07/05/2009	10/05/2010	30/06/2010	06/10/2011	08/12/2011	02/08/2012	06/09/2012	22/01/2015
	LTRO	FRFA	CBPP/LTRO	SMP	CBPP/LTRO	CBPP2	LTRO	OMT	OMT	Expanded asset purchase programme
DA	-0.9172	-3.2466	5.7698	-8.7455	0.2917	-1.0767	-0.1803	-3.1925	19.1767	-15.2146
[DA,+10]	-0.8511	-1.7200	1.0822	-1.3282	27.5258	2.0823	-0.3264	0.2106	39.6585	0.6646
[DA,+20]	-1.0352	-0.4495	1.1792	-0.5100	36.4386	0.9646	-0.4069	0.4430	31.6141	0.4760
[-10,DA]	0.1811	-0.9888	0.6867	-1.3596	1.0082	-0.1514	0.4991	0.2707	22.2764	-1.1084
[-20,DA]	0.5467	-0.1977	-0.2584	-1.0644	-21.0783	-0.4365	-0.1495	0.0212	13.2144	-1.2075
[-10DA,+10D	-0.3073	-1.2643	0.6518	-0.9914	14.8075	1.0627	0.0991	0.4041	31.5289	0.4920
[-20DA,+20D	-0.2279	-0.2523	0.3309	-0.5931	7.7963	0.2968	-0.2806	0.3156	22.4933	-0.0036

Note: AD= Announcement day

Table 3: Abnormal returns after announcements by the Fed

	25/11/2008	01/12/2008	16/12/2008	28/01/2009	18/03/2009	12/08/2009	23/09/2009	04/11/2009	10/08/2010	27/08/2010	21/09/2010	12/10/2010	15/10/2010	03/11/2010	22/06/2011	21/09/2011	20/06/2012	22/08/2012	31/08/2012	13/09/2012	12/12/2012
	QE1	QE1	QE1	QE1	QE1	QE1	QE1	QE1	QE1	Q2	Q2	Q2	Q2	Q2	Q2	MEP	MEP	Q3	Q3	Q3	Q3
AD	0.7514	-12.4150	86.6400	2.8708	16.6340	3.6777	3.0977	8.5967	31.5600	0.8369	54.3833	68.6200	79.0600	21.0900	0.7095	-52.1700	3.3740	3.3930	2.0138	5.5326	1.5336
[AD,+10]	0.2405	18.2895	87.4441	0.2838	-0.4474	0.0284	0.6619	9.6094	9.6094	0.2992	60.9054	48.1582	43.4179	-5.6636	-0.3074	-55.3370	0.1356	0.1851	1.1667	-0.6783	0.1874
[AD,+20]	1.1233	53.6010	31.2771	0.3832	-1.2703	0.3425	0.3322	10.3340	44.3900	1.2813	62.6716	32.5648	28.2781	-25.2508	-0.2112	-31.7994	-0.3694	0.2907	-0.0077	-0.5398	0.1857
[-10,AD]	0.6612	-1.8136	27.2945	-0.3202	3.4104	0.2669	-0.3610	8.3627	-6.5603	-0.4251	10.2930	72.9709	73.8024	28.1306	-0.4138	-47.3494	1.5476	0.8120	0.8369	1.1667	0.2545
[-20,AD]	1.9142	-15.0412	13.9688	-2.2322	1.9412	0.0748	0.0144	15.5059	-11.6176	-1.1211	-2.7897	56.9892	60.0502	47.3694	0.6479	-24.1679	0.5730	0.9247	0.4430	0.9536	0.6346
[-10AD,+10AD]	0.4365	9.2214	55.9755	-0.1558	0.7600	-0.0205	0.0101	55.9755	18.6214	-0.1058	34.7047	60.1810	57.6363	10.7641	-0.4116	-51.3038	0.7210	0.3607	0.9536	-0.0077	0.1584
[-20AD,+20AD]	1.5374	20.0529	21.0616	-0.2523	-0.0620	0.1240	0.1020	13.0254	16.0161	0.0616	29.3448	44.1954	43.3130	10.8146	0.2064	-27.3937	0.0220	0.5398	0.1739	0.0770	0.3827

Note: AD= Announcement day