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FX counterparty risk and trading activity in currency forward and futures markets ☆

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ABSTRACT

The Global Financial Crisis initiated a period of market turbulence and increased counterparty risk for financial institutions. Even though the Dodd–Frank Act is likely to exempt interbank foreign exchange trading from a central counterparty mandate, market participants have the option to trade currency futures on existing futures markets which standardize counterparty risks. Evidence for the period 2005–11 indicates that the market share of currency futures trading has grown relative to the pre-crisis period. This shift may be the result of a perceived increase in counterparty risk among banks, as well as changes in relative trading costs or changes in other institutional factors.

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1. Introduction

The Global Financial Crisis initiated a period of turbulence the effects of which are still impacting financial markets. In some respects, the foreign exchange (FX) market performed well during the crisis. Trading volume held up throughout the crisis and continues to be robust. The CLS Bank, a relatively new intermediary for settling a substantial fraction of interbank FX transactions worked as planned, eliminating delivery risk for counterparties using the CLS system.[1] However, in other respects the FX market was like a barometer for gauging market disruption. After the first signs of a developing crisis in summer 2007, deviations from Covered Interest Parity, the arbitrage condition that links the forward premium on currency to the short-term offshore interest differential between a pair of currencies, ballooned from under 10 basis points to 50 and then several hundred basis points after the Lehman Brothers bankruptcy in September 2008. Around the same time, the TED spread (i.e. the spread between short-term U.S. Treasuries and short-term Eurodollar bank rates) experienced a similar pattern where the spread moved sharply upward in the summer of 2007, and then shot up to unparalleled levels after the Lehman bankruptcy. While policy changes and the process of normalization of market conditions have had the beneficial impact of reducing CIP deviations and the TED spread considerably, both measures are still substantially greater than in the pre-crisis period. And both measures are yet two more indicators of a new normal where heightened risk and risk aversion seem to be driving a larger wedge between the traditional linkages in international financial markets.

In this paper, our interest is in exploring some of the implications that follow based on the perception that counterparty risk has grown among many traditional FX market participants. Of special interest here, the Dodd–Frank Act (2010) mandated that swap transactions must be traded and cleared through a centralized counterparty (CCP). Despite the critical importance of foreign exchange and the enormous volume of daily interbank FX trading, in April 2011 the U.S. Treasury proposed that FX swaps and forward contracts be exempted from the CCP mandate.[2]

Whether or not the U.S. Treasury proposal is adopted, market participants have the alternative to substitute the use of currency futures contracts traded and cleared through a CCP in place of currency forward contracts traded and settled through the interbank market. The general hypothesis we wish to examine is whether these developments (i.e. preservation of the status quo in trading and settling arrangements for FX swaps and forwards; and rising idiosyncratic risks among various important financial institutions) have helped induce FX market participants to migrate trading activity toward centralized trading and clearing organizations. As currency market participants assess their risks of dealing in the FX market, counterparty risks may be greater or more difficult to gauge in the current environment, inducing a preference for the transparency and reliability afforded by a CCP.

Because data on interbank market trading is more limited than data on futures market activity, our statistical methodology is somewhat

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[1] CLS Bank estimates that it provided settlement risk elimination services for 68% of the global foreign exchange market in April 2010 for the 17 currencies that are CLS eligible.

[2] In the 2010 survey, FX swaps and outright forwards accounted for 47% and 13% respectively of the nearly $4 trillion daily global turnover volume. However, the United States Treasury (2011, p. 7) reaffirmed that FX options, currency swaps, and non-deliverable forwards would not be exempted from the Commodity Exchange Act's definition of a swap. In other words, these contracts would still be subject to the CCP mandate in the Dodd–Frank Act.

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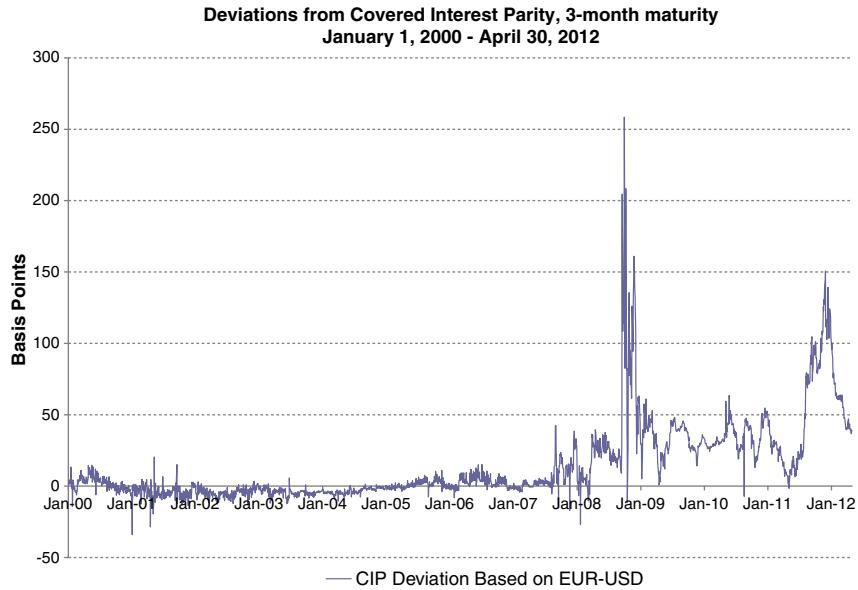

Note: Daily data on EUR/USD spot rates, 3-month forward rates, and 3-month LIBOR rates on the USD and EUR are from Bloomberg. Deviations from covered interest parity in basis points per annum calculated as [(F/S) x (1+i(EUR)/400) – (1+i(USD)/400)] x 40,000 .

Exhibit 1. Deviations from covered interest parity for the EUR–USD, 3-month maturity.

limited. However, based on the data that are available, the data suggest that since the onset of the Global Financial Crisis the volume of trading in currency futures has grown and gained market share while the market share that can be attributed to interbank currency forward contracts has declined. Possible explanations for the shift toward currency futures include an increase in bank counterparty risks, especially at the onset of the European sovereign debt crisis in late 2009. However other possible explanations such as a relative increase in interbank trading costs or other institutional changes need to be considered.

In the next section, we review some metrics that summarize the impact of the crisis on international capital mobility. We then outline the basic architecture for interbank currency trading and highlight the important but limited role played by the CLS Bank in reducing delivery risk for interbank currency transactions. In Section 4, we describe our data on currency forward and futures market trading activity, and then present our analysis of that data in Section 5. A summary of the results with policy implications and suggestions for follow-up research are in the final section.

2. Some metrics of the Global Financial Crisis

The ongoing history of the Global Financial Crisis is well-documented and numerous studies have analyzed its origins.[3] For our purposes, however, the Covered Interest Parity (CIP) relationship can be taken as nearly a sufficient statistic for the trading and operational efficiency of the foreign exchange market.[4] The gist of CIP is that arbitrage activity will drive the one-period interest differential on a pair of currencies, i($)–i(£), toward equality with the forward currency premium, (F-S)/S, when the exchange rates are expressed in units of $/£. In a perfect market with transactions costs at zero and no counterparty or default risk, arbitrageurs would insure that deviations from CIP are zero. While meaningful deviations from CIP were observed in the first half of the twentieth century, once the offshore markets (then referred to as "Euromarkets") developed in the 1960s, numerous economic studies confirmed that for the major currencies trading in liquid markets, CIP deviations were very small, and almost always smaller than the cost of engaging in arbitrage.[5]

Exhibit 1 shows CIP deviations based on the 3-month maturity for the Euro versus the US Dollar from January 1, 2000 until April 30, 2012.[6] The period through July 2007 appears tranquil with essentially all deviations bounded within 25 basis points of parity and upwards of 95% of all deviations bounded within 10 basis points of parity. This period strongly conveys the notion of a highly liquid capital market with virtually perfect capital mobility between short-term EUR and USD instruments.

The graph and the message change in the summer of 2007 when two hedge funds operated by Bear Stearns suspended redemptions and BNP-Paribas announced that they were unable to value three hedge funds. More events followed into 2008 as Northern Rock, one of the top mortgage banks in the United Kingdom, was nationalized and Bearn Stearns collapsed and was sold to JP Morgan Chase. In the initial phase of this pre-Lehman crisis period, deviations from CIP jumped to roughly 40 basis points, then recovered, and after the Bear Stearns collapse returned to the 40–50 basis point range through the summer of 2008.

Once Lehman Brothers failed on September 15, 2008, deviations from CIP in the most active currency pair in the most active financial market in the world spiked to over 200 basis points and for the most part remained above 100 basis points for the next three months. CIP deviations subsided to the 25–50 basis point range by spring 2009, and continued in that range for another two years. However, deviations again surged in August 2011 exceeding 100 basis points throughout November and December 2011 and then retreated to the 50 basis point range in spring 2012. The data make clear that CIP deviations have been, and are now in a far higher range compared

[3] See Lo (2012) for a summary and review of 21 such volumes. See Acharya and Richardson (2009, Chapter 1) for a summary of events through late 2008.

[4] Exchange rate economists use covered interest parity as a measure of perfect capital mobility.

[5] See Levich (forthcoming) for a survey of the literature on covered interest parity including empirical evidence from the 1960s through the recent Global Financial Crisis.

[6] This section is based on the discussion in Levich (forthcoming).

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