

Russell Research

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Collateral management: Aligning FX risks with the right risk management

As credit market conditions deteriorate¹, faith in the health of bank balance sheets and general creditworthiness of banks has suffered. As was the case in late 2008, concerns over counterparty risk are competing with market and operational risk concerns. This is particularly the case as challenges for the Euro foreshadow new extremes of exchange rate volatility, combined with the declining creditworthiness² of many financial institutions.

Is it different this time?

In 2008, the credit default swap market and then the equities markets received historic shocks. Even the Foreign Exchange (FX) market was soundly rattled by the events of 2008. Since then investors are raising questions regarding counterparty risk in the FX markets. Concerns arise because the majority of FX trades are over the counter (OTC). OTC trading inherently lacks the collateral protections that come with exchange trading. Forward currency contracts are dealt directly with counterparties, presenting considerable risk in case of default. The typical mechanisms for managing counterparty risk, which include diversification of counterparties, shortening contract

"Roughly 90% of over-the-counter derivatives transactions are between two financial entities such as banks, hedge funds, finance companies, pension plans and insurance companies. As long as financial entities remain interconnected through their derivatives, one entity's failure could mean a run on another financial entity and a difficult decision for a future Treasury secretary." – Gary Gensler, chairman of the US CFTC, writing in the Wall Street Journal, April 2010

This paper is an updated and revised version of an article first published in *The Journal of Trading* in Fall 2010³.

¹ As evidenced by the continued trend since January of 2007 of widening credit default swaps for the major FX counterparty banks.

² As evidenced by the 24 downgrades (of 36 possible with three credit ratings agencies) for 12 of the largest currency forward counterparties since 2008.

³ Murphy, A. and Hoffman, J. (2010). "Collateral Management: Aligning FX Risks with the Right Risk Management." *The Journal of Trading, Institutional Investor Journals*. Fall 2010, Vol. 5, No. 4: pp. 40-44 DOI: 10.3905/jot.2010.5.4.040. Available at: <http://www.ijournals.com/doi/abs/10.3905/jot.2010.5.4.040>.

maturity, and counterparty credit reviews serve as limited defense against the elevated systemic risk of bank defaults. Investors remain concerned for their capital.

With significant doubts regarding the quality of many banks' capital, consideration of default risks are on the rise. The potential damage to a fund from FX counterparty failure may be material and worthy of attention for the typical investor with international equity exposures. Although the best investment managers will have a credit review process⁴ that may steer them away from the firms most at risk, the events of 2008 demonstrated that no institution is immune during a full blown liquidity crisis.

To paraphrase one politician, it would be a shame to let the past crisis go to waste. Having learned what potential loss of capital can occur through over the counter exposure to financial firms, it is time for investors to consider robust collateralisation programs for FX.

Three Markets, Three Levels of Risk, One Inversion

Institutional investors hedging risk will often choose between three derivative instruments: futures, swaps, and forwards.⁵ The counterparty risk one experiences with each instrument comes from two sides – the amount of volatility in the market being hedged, and the safeguards in place for each instrument against counterparty default.

Counterparty risk is the risk that one's trading partner will not make good on the trade. It is the same as default risk, but more firm specific. Of the many risks that hazard one's capital, counterparty risk is one of the more responsive to a methodical response: collateralisation.

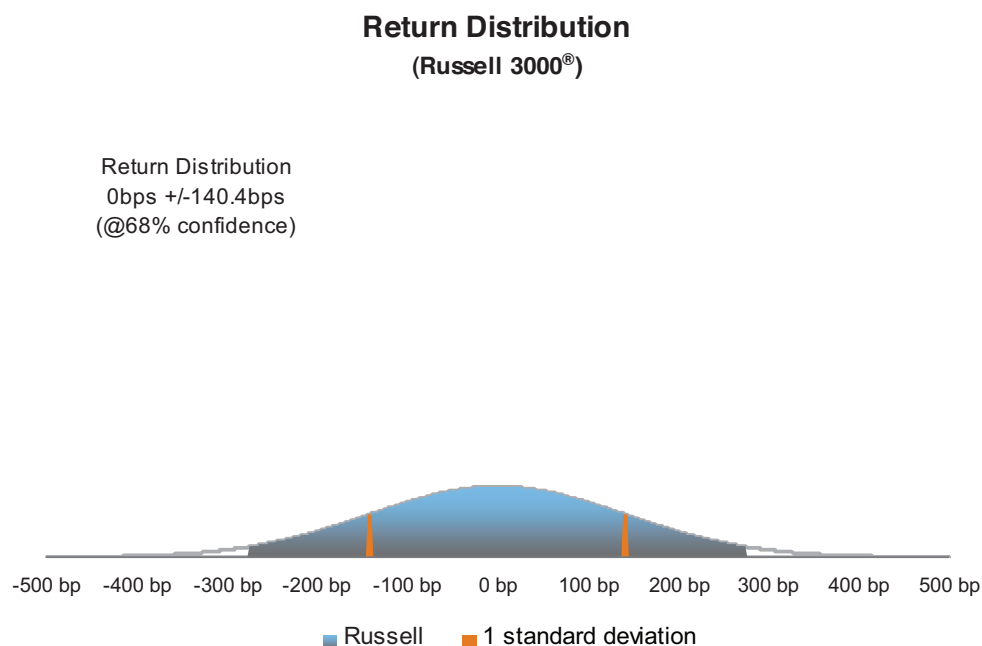
FUTURES

Futures are often used for hedging equity market risk. With the broadest dispersion of returns, presenting what is usually the biggest potential risk (Figure 1), equities market futures enjoy the highest levels of protection in the derivatives market. Traded on an exchange with the use of a central clearinghouse, futures markets require the posting of initial collateral and the daily marking to market of the position.

⁴ It is quaint to think of the day - not long past - when counterparty credit ratings assuaged many people's concerns over default. Investors are best served to seek firms who staff for and provide independent credit reviews of all counterparties.

⁵ Options also exist as an alternative to forwards, but are better suited for conditions where future cash flows are uncertain, as opposed to the certainty of cash flows in institutional investing.

Figure 1: Equity market return distribution

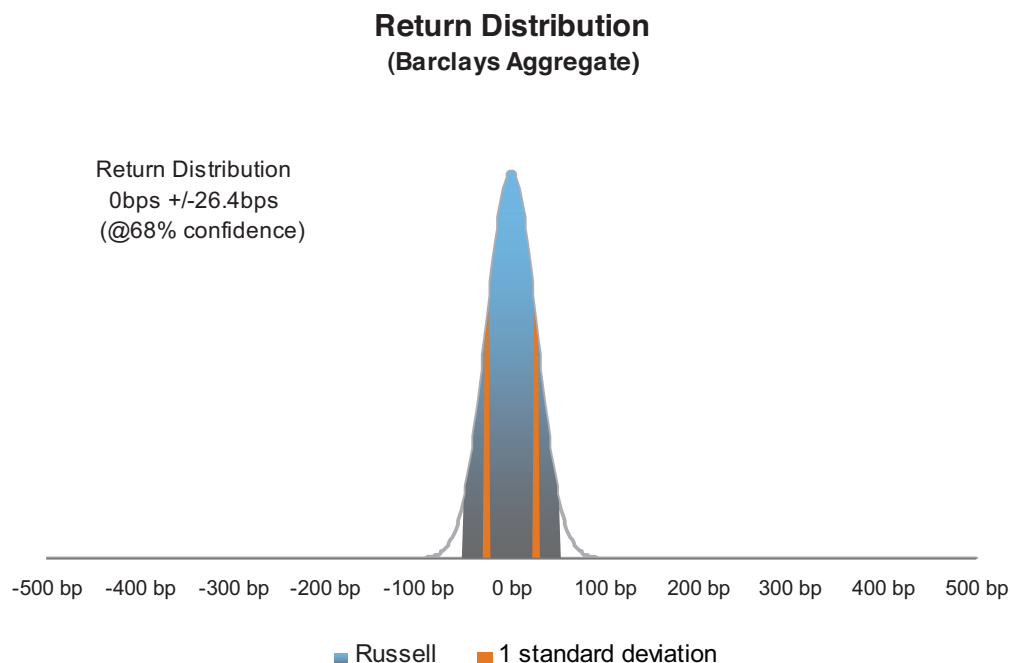


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SWAPS

Swaps are most commonly used for hedging interest rate risk. Interest rate risk is concentrated within a narrower interval (Figure 2) than equities returns. Being OTC instruments, swaps offer protections that are less robust than those offered by exchange traded futures contracts. However, protections are in place for counterparty risk in swap agreements. Minimum profit / loss thresholds are set over or under which payments are made, and time periods between mandatory payment resets are kept short.

Figure 2: Barclays Capital Aggregate Bond Index return distribution



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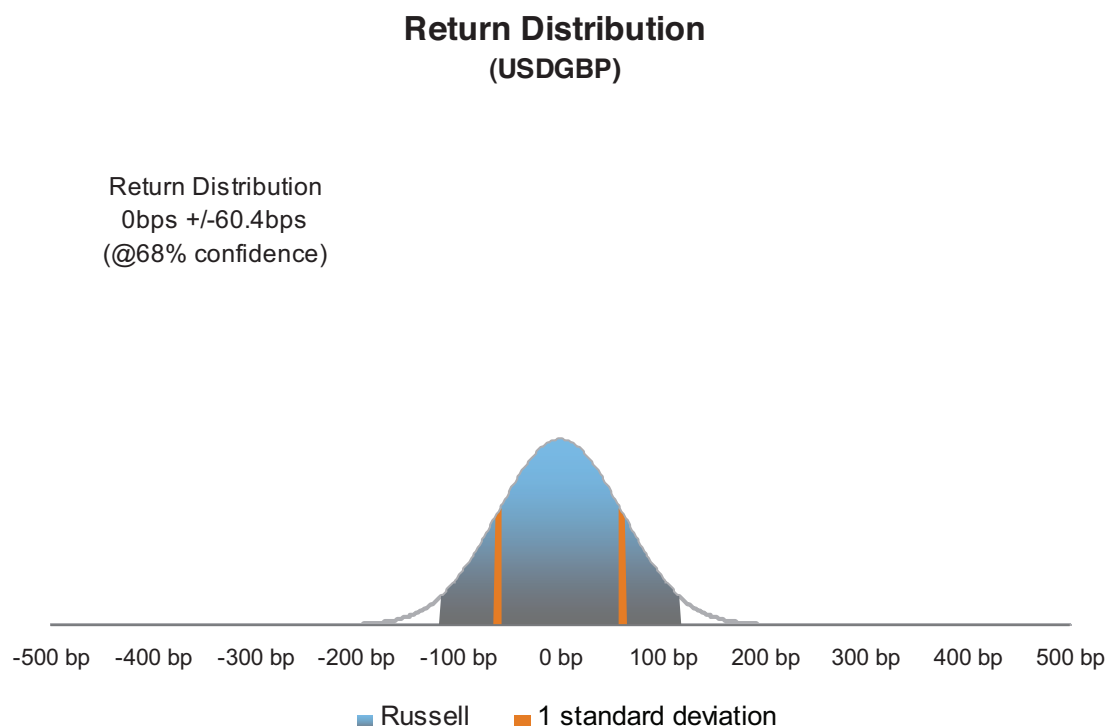
FORWARDS

Forwards are often used for hedging FX risk. As defined by the distribution of returns, FX risk is typically less than equities risk but greater than interest rate risk (Figure 3). Like swaps, forwards are OTC instruments and present much greater counterparty risk than exchange traded futures contracts. Ironically the instruments commonly used for FX – forwards – offer less robust protections than those typically provided in the swap market. The counterparty protections provided in a forward contract include counterparty credit review, diversification of counterparties and the shortening of time thresholds. Not surprisingly, the buy side and the sell side are increasingly uncomfortable with this arrangement.

“Herstatt risk” describes the exposure to counterparty bankruptcy or default risk that lasts from the time a payment instruction for a currency is made to the time that the currency is actually traded and received. Gaps in market openings and closures across the world increase the risk from the settlement of currency deals.

Beginning with Bankhaus Herstatt’s failure in 1974, to BCCI in 1991, to the collapse of Barings Bank in 1995, investors saw their currency trades exposed to risk of non-delivery by failing counterparties. Although different from the counterparty risk addressed in this paper, it is similar enough to warrant mention. The Continuous Linked Settlement (CLS) Bank system evolved after the Barings Bank bankruptcy to help mitigate this risk in the spot currency markets.

Figure 3: US Dollar / Great Britain Pound return distribution



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The forward market is left with an ordinal mismatch between the level of risk in the market it is intended to hedge – FX – and the level of protection that is inherent in the swap or futures markets.

A solution exists however to put forward contracts in the proper risk management structure: collateralisation. By posting zero-threshold, daily-mark-to-market collateral requirements with forward counterparties, the risk of a loss in the event of a default on a forward agreement is more credibly contained.

Potential Costs of Action Not Taken

For institutional investors, collateralisation in the forward market is not at present a common practice. Before the financial crisis of 2008, counterparty risk for forwards was not considered a major factor. As a wave of unease over counterparties crested to panic in 2008, a tremendous unwinding of positions was made away from the weakest-looking institutions in all instruments, including forwards. This involved the risk of having to put on a new position at different rates than those originally transacted. Despite the mismatched exposure problems caused by resetting, investors thought the effort worthwhile compared to the risk of losing one's market gains from the forward position in case of counterparty default.

Although the forward markets do not involve an initial exchange of cash, and therefore do not present the threat to investor capital in case of default that other markets may, forward counterparty defaults do present potential loss of unrealised gains. They also present a challenge for managing market exposure and liquidity at a time when both are most important.

An example is provided below. A US investor with 100 million (mln) Euros invested in European equities has a net long exposure to the Euro. To hedge that exposure a short 100 mln Euro forward position is taken with a major bank (Bank A). The current EUR/USD interest rate differential (assume six month tenor) at Time 1 dictates the forward outright price as being 130.20 mln. Where the Euro will be trading in six months time is a matter for conjecture, but the forward contract locks that in and removes the risk of any inter period movement.

Figure 4: What happens should Bank A declare bankruptcy?

Counterparty	Exposure	Notional	Spot	Forward	
Time 1	Short Euro	€(100.00) mln	1.3000	1.3020	130.20 mln
Time 2	Short Euro	€(100.00) mln	1.2500	1.2510	125.10 mln
Unrealised gain on forward with Bank A					5.10 mln

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At Time 2 the forward price is 1.2510, for an unrealised gain of \$5.1 million. If Bank A has defaulted or gone bankrupt, the fund will not collect and investors will face a loss of that amount. Depending upon the frequency of settlement, collateralisation will help the funds retain an amount close to that gain.

Institutional investors may wonder why a few million in gains or losses is worthy of the attention and effort of collateralisation. The events of 2008 should again be recalled. When markets and counterparty creditworthiness are under high seas, it is imperative to have all sails hauled in. Undesired risk from whatever source is better managed than left to shred in the wind. Additionally, all available sources of liquidity are needed on deck. As developed country debt levels grow, so too will currency volatility. The need for managing such risk will also grow with the size of institutional investors' international mandates.

A Potential Way Forward for Forward Currency Contracts

Collateralisation brings forward agreement risk management more in line with the level of risk of the underlying FX markets. By managing collateral positions as the markets move, the risk of net long or short exposure to a currency as a result of counterparty default is contained. As FX rates change, counterparties exchange collateral to keep the net exposure to an acceptable level.

Judging by the lack of adoption of collateralisation in the industry, perhaps many who use currency forwards might think it difficult to put a collateral program in place. It is true that there are operational challenges that make collateralisation a premium service.

However many clients find it worth the cost. What they might implement is a program that posts collateral on their currency positions. A valuations formula can be managed by setting up a valuations table and confirmation process, a SWIFT connected FX desk, and the necessary FX and interest rate data inputs. The collateral posted can be used to change the net exposure accordingly. While this is work, it serves to protect investor capital in a manner commensurate to the risk incurred.

Once the tendency towards complacency regarding counterparty risk is overcome, the forward markets could see significant risk reduction through collateralisation. With FX risk standing somewhere between equities risk and interest rate risk, collateralisation will help bring risk management levels to somewhere between the two as well.

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