The practice of currency risk management started after the collapse of the Bretton Woods agreement and the beginning of floating-rate foreign exchange system in 1973. It had gained importance steadily in the 1970s and 1980s when global portfolio diversification had gradually become the generally accepted way of investing for institutional investors. The concept and practice of “currency overlay” emerged in the second half of ‘80s.

Many definitions of currency overlay exist and can vary greatly. A commonly used definition of currency overlay is the separate (instead of bundled together with the underlying risks) and systematic (instead of ad hoc hedging transactions) management of currency risk embedded in any global portfolios. A currency overlay program can be managed internally within an investment organisation or externally, outsourced to specialist companies. The externally managed currency overlay programs, together with specialist currency overlay managers, give rise to the notion “currency overlay industry.”

Over the last three decades, more and more institutional investors have started using currency overlay in their investment portfolios and the industry has grown in size and sophistication. Countries with more established pension fund industries tend to be the countries where currency overlay method is used more widely: Australia, Japan, European countries such as the Netherlands, Sweden, Switzerland and the UK, the U.S. and Canada. Over the recent 10 years, some institutions based in the emerging market countries have also started to engage the currency overlay industry. The main users of currency overlay services are pension funds, insurance companies, mutual funds, private banks and some other institutional investors. The estimated size of currency overlay industry is shown in Chart 1.

There are three main types of currency overlay programs: passive currency overlay, active currency overlay and currency pure alpha programs.

It is useful to note that though the practice of currency overlay management has spread globally, the theoretical debate on how currency risk within a global investment portfolio should be handled remains as unsettled as ever. There is the “free-lunch” camp advocating a full currency hedge against the “random walk” camp proposing no currency hedge, and any number of theories sitting between these two polar approaches.
Use of Futures versus Forwards

Historically, foreign exchange forward contracts have been the instrument of choice for all kinds of currency overlay programs. Forwards and foreign exchange swaps, which are essentially two forwards in a single package, are traded in the over-the-counter (OTC) foreign exchange market, a lightly-regulated, loose global network with a score of large international banks acting as market makers. Forward contracts are typically traded between a client and a bank using the credit lines granted by the bank to the client. Currency overlay managers usually act as an agent for clients on such transactions. Collateral or margining are only required very occasionally as the maturities of the forward and swap contracts for currency overlay program are usually one or three months at most. This is an important consideration for currency overlay programs as in general, the underlying portfolios are fully invested and therefore may not have much “spare cash” for margin accounts.

The forward and FX swap market is extremely liquid for maturities up to a couple of years for major currencies pairs and reasonably liquid for minor currency pairs under normal market conditions. Counterparty banks can quote any sizes, maturities to suit clients’ specific requirements. Rolling-over or unwinding existing contracts, typical requirements for currency overlay programs, can be accommodated easily. The post-trade confirmation and settlement processes are increasingly conducted automatically, same as the trading itself, via electronic platforms provided by the banks or by some multi-bank platforms.

Given the convenience of using OTC forward and swap contracts, it is perhaps not surprising that FX futures contracts had only been used sparingly by currency overlay managers, for example, when the investment mandates explicitly forbid the use of OTC derivatives, or when for some emerging market currencies, FX futures are much cheaper to trade than forwards. Generally speaking, the transaction costs for futures are comparable to those for forwards; but, in terms of customization and convenience, forwards are superior. The FX futures turnover was just over 1% of FX forwards/swaps turnover in 1990s and the absolute volume of FX futures was declining between two Bank for International Settlements triennial FX surveys in 1995 and 1998.
However, the situation has changed dramatically in the 2000s, with FX futures clocking much faster growth. In a 2010 BIS survey, the daily turnover of FX futures was over 7% of that of forwards and swaps. According to data compiled by CME Group, the largest regulated FX marketplace in the world, CME Group’s daily average turnover in FX products has been growing more rapidly compared to that of EBS, a prominent electronic trading platform for FX spot in the interbank market. In September 2012, CME Group’s volume surpassed that of EBS, as shown in Chart 2. Part of the increasing popularity of futures can be attributed to the growing band of high-frequency traders in foreign exchange arena, but another part is linked to the changed industrial and regulatory landscape in the aftermath of the global financial crisis.

![Chart 2](image)

**Chart 2** CME’s average daily FX turnover as percentage of EBS’s daily turnover, 2005-2012

*Source: CME Group*

### The New Paradigm

The OTC-based foreign exchange forward and swap market, largely run on the trust between market participants, was predictably shaky at the heights of the global financial crisis. Bid-offer spread in forwards spiked dramatically, as shown in Chart 3. The increase in the transaction cost was, however, only one facet of many difficult choices that had to be made by currency overlay managers and the investors who had outsourced the management of their currency risks to these currency overlay managers at the time. Banks suddenly became much more selective in terms of which clients they would continue dealing with and which ones they would not. Some banks started reducing the trading lines to their clients and shortening permitted maturities. Also, banks had started
introducing collateral arrangements, periodical resets and/or credit charges for clients that they had deemed fully creditworthy before.

The suspicion was mutual. In the worst days and months of the global financial crisis, some banks failed, and many large banks were rumoured to be in difficulty at different times. The overlay managers and the end-clients needed to review their own counterparty arrangements from one day to another - a task that had been considered non-essential by many market participants prior to this. It was commonly assumed that given the short maturities of forwards typically used for hedging, the credit risk was really minimal. The financial crisis seemed to have made these “short maturities” very long. Many overlay managers started monitoring the credit ratings of their counterparty banks and spreading their transactions among several counterparty banks.

During the 2000s, there had been an increasing level of adoption of FX prime brokerage service among currency overlay managers. For a small fee, a prime broker, typically one of the large international banks, acts as the single counterparty for a client on all FX transactions while the client retains the flexibility to trade with multiple banks. Prime brokerage service helps the client to reduce settlement risk while adding efficiency in the confirmation and settlement processes, usually via the electronic tools provided the prime broker.

However, the use of a prime broker also meant the concentration of counterparty risk: all the credit risk faced by the client is with the prime broker irrespective of how the transactions are spread out among different counterparty banks. While the large international banks took their turns appearing in financial headlines as a candidate for the next bank failure, currency overlay managers and their end-clients were trapped between rock and hard place.

The new situation prompted some currency overlay managers to re-evaluate the question of forwards versus futures, considered long-settled up to that point in time.

**Chart 3** Average bid-offer spread on forward contracts for EUR/USD and USD/JPY, 2004-2011

*Source: EcoWin*
A raft of new international and national regulations on the banking and financial industry are now at various stages of implementation and these are aimed at addressing the weaknesses of the current system exposed by the global financial crisis. Some provisions in the Dodd-Frank Act, such as specific requirements on reporting and central clearing of OTC derivatives, are designed to increase transparency and to reduce the interconnectedness of the global OTC markets. The industry and the regulators for the last three or four years had been debating on how FX forwards and swaps - one of the largest categories of OTC derivatives - ought be treated until the U.S. Treasury announced in November 2012 that these would be mostly exempted for central clearing, with the exception of non-deliverable forwards and FX options.

The banks engaged in global FX business greeted the announcement with a sigh of relief. There were already comments that the exemption would permit many other types of derivative instrument to dress up as FX forwards or swaps and thus circumvent the new rules on central clearing. It is therefore likely that the exemption could be reviewed some time down the line, based on the evidence of market reaction upon implementation.

With the exemption, the U.S. Treasury effectively blessed the continued use of FX forwards and swaps for the currency overlay business, but it cannot quite undo the painful memories suffered by the overlay managers and their clients of the runaway bid-offer spreads, the fear of counterparty default, the difficulties executing simple transactions during the crisis, and, above all, the uncertainties. The motivation to take another look at alternative hedging instruments remains valid. If anything, the latest piece of news, after a long period of deliberation, lobbying and counter-lobbying, and much guesswork, may add to the necessity.

There was another, unrelated, reason for the renewed interest in futures by the currency overlay managers, which had to do with lawsuits filed against some custodian banks by a handful of large U.S.-based pension funds. Traditionally, these custodian banks provided the auxiliary FX transaction service to facilitate security purchases and sales in foreign currencies and FX hedging service. These custodian banks were allegedly providing what routinely was the worst price of the day to their clients, who may not monitor such foreign exchange transactions.

The OTC foreign exchange market is large and liquid, but not necessarily transparent. These lawsuits clearly illustrated the potential pitfalls to investors. In comparison, futures market is much more transparent and can therefore help clients avoid being ripped off.

Futures Revisited Now

If the cost of using forwards versus futures is narrowly defined as the transaction cost - or the bid-offer spread, including any fees payable for trading futures - there is little difference between these two alternative hedging instruments in general. There are several more recent comparative studies on transaction costs and trading liquidity of FX forwards versus FX futures and there is no conclusive evidence showing one market being consistently cheaper or more liquid to use than the other. If anything, bank-produced research papers tend to show lower transaction costs for OTC market, while research papers from exchanges usually reach the opposite conclusions. Some people argue that the more rapid growth in the futures market is an indirect piece of evidence indicating that it is cheaper to trade futures. However, the argument should probably be made the other way around: more futures turnover tends to reduce the transaction costs. There is, however,
one noticeable difference in terms of transaction costs: for emerging market currencies, the transaction costs for futures, when they exist, are often lower than the corresponding forwards, in most cases non-deliverable forwards.

Apart from the transaction cost, we list below some of the main trade-offs that a typical currency overlay manager would need to consider over the question of using forwards versus futures. In every category, we look at the changes over the last 10 years.

<table>
<thead>
<tr>
<th>Categories</th>
<th>10 years ago</th>
<th>Current situation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity</td>
<td>Turnover in futures tended to be much smaller than in forwards.</td>
<td>Turnover in futures has been growing much faster.</td>
<td>For many currency pairs, futures and forwards markets offer similar liquidity.</td>
</tr>
<tr>
<td>Availability of currency pairs</td>
<td>Futures were only available in major currency pairs whereas OTC market could quote almost any currency pairs.</td>
<td>OTC market can quote almost any currency pairs but for less liquid pairs, prices are obtained via liquid pairs. Futures are now available for many more currency pairs, including some emerging market currency pairs.</td>
<td>Forwards still have an edge but its lead is diminishing.</td>
</tr>
<tr>
<td>Credit risk</td>
<td>Credit risk was almost fully mitigated via margining for futures. Credit risk was considered inconsequential for forwards.</td>
<td>Credit risk is still almost fully mitigated via margining for futures. Contracting counterparties for forward need to reconsider the credit risk after the global financial crisis and new regulations.</td>
<td>Clear advantage for futures.</td>
</tr>
<tr>
<td>Customised size and maturity</td>
<td>Forwards and swaps were fully customisable where futures where standardised.</td>
<td>Same situation. However, there is an increased level of understanding by currency overlay managers (in fact, by most end-users), the advantage of having the precise notional size and maturity may be overstated.</td>
<td>Forwards still have a clear advantage.</td>
</tr>
<tr>
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<tr>
<td>Cash-flow management</td>
<td>Cash-flow management for futures tended to be cumbersome due to margining. There was minimum hassle for forwards and swaps.</td>
<td>Similar situation. But many currency overlay managers acknowledge that one cannot totally avoid cash-flow issues by using forwards/swaps in currency overlay programs: you simply have less frequent but lumpier cash-flows vs-avis using futures. Also, banks may introduce some &quot;reset&quot; features in forwards or collateral requirements in order to reduce their credit risk, which would erode the advantage of forwards even further.</td>
<td>Forwards are still less administratively intensive. Again, the advantage is not as significant as before.</td>
</tr>
<tr>
<td>Regulatory requirements</td>
<td>No clear-cut winners. Both tended to be lumped under &quot;derivatives.&quot;</td>
<td>New regulatory requirements tend to favour futures vs forwards in terms of capital charge, clearing and reporting requirements.</td>
<td>Futures are clearly favourable under the new regulatory regime.</td>
</tr>
<tr>
<td>Settlement risk</td>
<td>Futures were considered to have lower settlement risk.</td>
<td>Futures are mostly settled via CLS Bank whereas some forwards are now settled via CLS Bank.</td>
<td>Futures entail lower settlement risk.</td>
</tr>
<tr>
<td>Trading hours</td>
<td>Forwards were traded around the clock during business days but futures were only traded during opening hours of the exchanges.</td>
<td>Forwards are still traded continuously but many exchanges have extended opening hours now.</td>
<td>Forwards have a much smaller lead now.</td>
</tr>
<tr>
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<td>Conclusion</td>
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<tr>
<td>Quoting conventions</td>
<td>Forwards and swaps were quoted in pips in either of the two currencies in a currency pair; futures were quoted in pre-specified increment in one currency only.</td>
<td>Some futures brokers are offering front-end tools that make trading futures very similar to trading forwards. Exchanges have also introduced futures that are quoted according to interbank conventions.</td>
<td>Similar.</td>
</tr>
<tr>
<td>Electronic trading platform and</td>
<td>Futures trading had historically been more advanced in terms of electronic trading vs forwards - one of the first electronic trading platforms was created by CME Group on FX futures.</td>
<td>OTC FX trading is now also mostly done via electronic platforms and there are many different platforms (single banks vs multi-bank platforms, or ECNs) to choose from, with varying degrees of functionality and reliability.</td>
<td>Similar. The exchange platform is faster and more robust, with the added benefit of a single central book. However, an end-user will likely need to go through a front-end system provided by a futures broker.</td>
</tr>
<tr>
<td>straight-through-processing (STP)</td>
<td></td>
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<tr>
<td>Rollover facility</td>
<td>OTC market provided more flexible rollover facility than exchange traded market. Rollover is a very important feature for currency overlay programs as the hedging requirement is usually ongoing.</td>
<td>Rollover is gradually becoming a standard service for futures trading and the myth of increasing level of transaction costs and volatility due to rollover is probably just myth.</td>
<td>Similar.</td>
</tr>
<tr>
<td>Market-makers</td>
<td>OTC market was made by market-makers where there may or may not be market-makers for futures.</td>
<td>Similar. Many exchanges do have market-makers.</td>
<td>The presence of market-makers helps to facilitate large transactions and stabilise the market in volatile trading environment. Now futures and forwards markets are similar.</td>
</tr>
</tbody>
</table>

*Table,* **Quoting Conventions,** **Electronic Trading Platform and Straight-through-processing (STP),** **Rollover Facility,** **Market-makers**

Haxius Consulting Limited
Risk, Derivatives, OTC/CMDN
## Categories

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<td>Trading fees</td>
<td>OTC market did not charge trading fees whereas there were various trading fees for trading futures, albeit very small. Overall, as stated earlier, the all-in transaction costs were comparable between forwards and futures.</td>
<td>Similar.</td>
<td>Similar.</td>
</tr>
<tr>
<td>Size of overlay program</td>
<td>As forwards and swaps are based on trading lines granted by counterparty banks, it was usually not feasible or economical to use forwards for smaller overlay programs (say, AUM less than $100 million). There was not such restriction on using futures.</td>
<td>Same.</td>
<td>Futures are more amenable for smaller sized overlay programs.</td>
</tr>
</tbody>
</table>

Overall, we feel that the edge of FX forwards over futures has diminished significantly over the decade and using futures can now be a valid supplement, if not a full alternative at this stage, to the traditional instrument of choice, forwards.

### Other Practical Considerations

Most of the practical issues are discussed in the previous section. However, there is the issue of banking or broker relationship. An overlay manager needs to choose a broker or brokers to trade FX futures. Generally speaking, here are the main points one usually takes into consideration when choosing a counterparty bank for OTC FX transactions:

- whether the bank is large enough, preferably among one of the top 20 global FX banks;
- whether it has good credit standing as OTC involves credit risk;
- whether it offers online dealing platform and straight-through-processing;
- whether it offers tight prices and good liquidity in terms of large deals;
- whether it offers 24-hour stop-loss order monitor and execution facilities;
- whether it has a good dealing desk and back-office services;
whether it provides additional FX research;
whether it offers prime brokerage service;
whether it requires collaterals;
whether it can link up with any custodian banks for settlement;
whether it has own insurance against negligence and fraud.

Some of these issues remain relevant when selecting a futures broker, but the main considerations should be electronic front-end platforms, collateral management service and access to different markets. It is important to make sure that the funds intended for margin management and any securities for collaterals are with a third-party custodian if possible, especially after the debacle of MF Global. CME Group’s website includes a special section listing all futures brokers by geographic region. Many large international banks have separate futures brokering subsidiaries for clients.

Conclusions

Currency overlay, a practice to measure and management currency risk separately from the underlying portfolios, has gradually become a standard tool for many institutional investors around the world. OTC-traded FX forwards and swaps had been the instrument of choice for almost all currency overlay programs for a variety of reasons.

The painful experience of currency overlay industry during the global financial crisis and the ensuing new regulations on the banking and financial industry call for a re-evaluation of the potential use of futures for currency overlay in general. Through our analysis, we believe that FX futures have already cleared the necessary pre-requisites to be a serious contender as an alternative, or at least a supplement, to forwards in currency overlay programs.

Click here for more information on the growing suite of CME Group’s FX Futures.
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