



# Managing foreign exchange transaction exposure—the alternatives

IN THE FEBRUARY ISSUE of *National Accountant*, I presented an article that offered an introduction to a specific aspect of financial risk management, namely, the management of foreign exchange (FX) exposure. In that article I identified the three specific types of FX exposure; *translation*, *operating* and *transaction*. As a reminder, these are again defined.

*Translation exposure* arises when the assets, liabilities, revenue and expenses of a foreign affiliate, which are usually recorded in a foreign currency, are re-expressed in terms of the home currency of its parent. This occurs when the financial statements of a foreign subsidiary need to be combined with those of the parent company to produce consolidated reports. Currency movements can lead to gains or losses on consolidation.

*Operating exposure* concerns commitments not yet formally made, and arises as unexpected currency changes affect the firm's future operating cash flows via competition and prices, and hence ultimately affect the firm's value.

*Transaction exposure* concerns pre-existing cash flows. It arises as firms enter contracts that involve receiving or paying a foreign currency at a future date; as the exchange rate occurring at that receipt/payment date is uncertain, the final receipt/payment is also uncertain.

The focus of this article is transaction exposure; the purpose is to identify and discuss some of the alternatives available to manage it.

## Two choices—do nothing or hedge

In the broadest terms, firms that face transaction exposure have two choices with regard to its management; they can *do nothing about the exposure and remain unhedged*, or they can *hedge the exposure*. AASB 1012: Foreign Currency

Translation defines hedging as 'action taken, whether by entering a foreign currency contract or otherwise, with the objective of avoiding or minimising possible adverse financial effects of movements in exchange rates'.

## Do nothing

Some reasons why firms should remain unhedged are based upon well-known academic theories. These include purchasing power parity (PPP) and the capital asset pricing model (CAPM). PPP dismisses the need for FX exposure management because it argues that exchange rates and inflation rates automatically adjust to offset the impact of each other. Briefly, the CAPM's relevance to FX exposure management is in its tenet that systematic risk (non-diversifiable) is the only risk that is important in determining the price of an asset. As exchange risk is unsystematic or diversifiable, no value accrues to the firm from its management. The investor who holds a diversified portfolio can eliminate this risk, for example, by investing in another company with an exposure of equal currency value but an opposite position.

A final (perhaps, less 'academic') argument against hedging examined here is self-insurance. This argues that in the long run, gains and losses from exchange rate movements will average out. For firms that trade consistently in foreign currencies (buy and sell in amounts denominated in a foreign currency) this may be true; however, for the firm that trades overseas only occasionally, this is fraught with dangers, as one adverse exchange rate movement may be enough to severely damage the firm's financial well-being.

## Hedge

While academic and other arguments can be put forward for both hedging and not

hedging, the reality is that, in practice, most firms do hedge (see for example McCarthy 1999). For these firms, there are two broad classifications of alternatives available. First the firm can avoid an exposure being created by using *internal hedges*. Second, if internal hedges are inappropriate or unsuccessful, the firm can use *external hedges*.

## Internal hedges

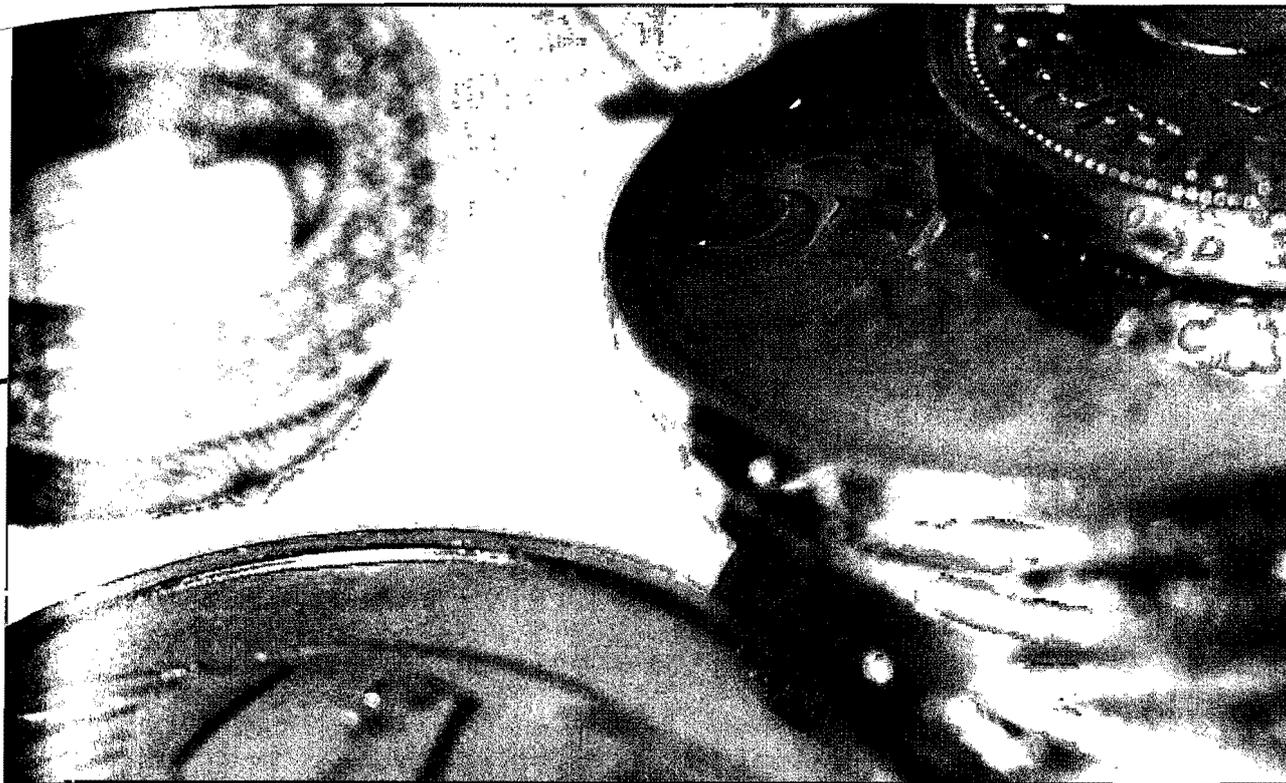
Hedges that ensure transaction exposure does not arise, even though the firm may be involved in exporting and/or importing, are known as internal hedges. Some of the better known are discussed below.

## Invoicing

To hedge using invoicing requires firms to demand payment, or make payment, in their own domestic currency. As a result, the problem of FX transaction exposure is passed on to the other party. A major advantage of this technique is that there is no explicit cost to the firm. An implicit (or indirect) cost may be that some customers will refuse to deal with the firm and instead take their business elsewhere. An important issue is whether firms will actually be in a position to be able to dictate conditions of payment. This may depend upon a number of factors such as: their size, their position in the market (do they hold a monopoly or are they one of many potential suppliers), and, are they a regular supplier to the purchaser. A firm that is the sole supplier of a particular good will be in a stronger position to dictate terms of payment compared to a supplier who has many competitors.

## Natural hedge

A natural hedge involves offsetting exposures in one currency with exposures in the same, or another closely correlated



currency. (Depending on the situation the correlation will need to be either positive or negative.) This allows losses on an exposed position to be offset by gains on another position, and, ideally, the gains and losses will cancel each other out. This technique would require a lot of research and organisation, especially when a correlated currency needs to be found. Another example of a natural hedge is for a firm to match the mix of currencies it borrows with those that it expects to receive as payment from its operations. The costs of this technique may become exorbitant, as it would require firms to borrow in as many currencies as they have due.

#### *Other internal hedges*

There are also a number of internal hedges that do not avoid FX exposure, but instead reduce its impact. *Leading and lagging* involves re-timing the payment and receipt of foreign currencies to take advantage of favourable exchange rate movements. *Currency clauses* can be written into contracts and require both parties to share the impact of an adverse exchange rate movement. *Currency swaps* and *back-to-back loans* are quite sophisticated and mostly can only be used by very large firms with substantial overseas transactions and subsidiaries.

#### **External hedges—when transaction exposure exists**

As discussed above, certain internal hedges can be very effective in avoiding exposures from being created. However, given that many internal hedges require substantial bargaining power, and/or research, they may prove difficult for particular firms to implement. This is not the case for external hedges. Unlike internal hedges, external hedges usually involve contractual dealings with an external party, for example, banks. There are many external hedge instruments available for firms to use, and variations of these instruments have grown enormously in recent years. The best-known external hedges discussed in the next sections are forwards, futures, options, money market hedges, swaps and overseas currency accounts.

#### *FX forward contracts*

FX forward contracts (FEC) are the simplest of the external instruments. They are used to lock in a future exchange rate today for either the purchase or sale of a particular currency at a specified date in the future. FX forward markets are very liquid and an FEC is legally binding. FECs are traded on most major currencies, usually for maturities of one, two, three, six, nine and twelve months.

Other maturities, often called odd or broken dates, can be negotiated between the interested parties. According to Smith, Smithson and Wilford (1990), FECs create a credit risk for the parties because of their dependence on the other party's performance. This default risk is directly related to the volatility of the spot rate. As a result of this, financial institutions involved in FECs with firms often require collateral. Futures contracts, discussed next, are designed to avoid this problem (Smith, Smithson and Wilford 1990).

Exchange rates for FECs are determined by interest rate parity (IRP), that is, by interest rate differentials between the two currencies involved. FX forward quotes, like spot rates, are quoted as bid and offer rates. The spread between them represents the profit to the seller, and the cost to the buyer. A more substantial cost of a FEC is that which is not known until maturity of the contract, namely, the difference between the spot rate on that date and the forward rate. The spot rate represents the rate at which the buyer could have traded, if not contracted to the forward rate. The difference may be negative or positive, representing either an opportunity loss or profit to the buyer, depending on the direction of the change in the spot rate.

### Futures

The history of futures contracts can be traced back a number of centuries to the Chicago Board of Trade in 1848 (Hull 1998). In Australia, the Sydney Futures Exchange (SFE) was first established in 1960 as the Sydney Greasy Wool Futures Exchange.

Futures contracts are similar to forward contracts. They are an agreement that some trade will occur in the future. Kolb (1988) distinguishes futures contracts from forward contracts on four grounds:

- Traded on an organised exchange
- Standardised contracts
- Clearing house settlements
- Margin and daily resettlements.

The world's first currency futures were traded in 1972, and in Australia in 1980 (Peirson et al 1998). In Australia the market for futures in currency has over time proven to be extremely thin and for this reason no currency futures contracts currently exist. Futures contracts were available for United States Dollars, Japanese Yen and Great Britain Pounds, but all have been discontinued. Similarly in September 1991, the futures market for the Australian Dollars (AUD) was abolished. AUD futures can be traded on the International Monetary Market Division of the Chicago Mercantile Exchange in contract sizes of AUD 100,000. This is a relatively substantial amount and is possibly a major disadvantage of futures for many firms. This amount is another disadvantage of a futures contract, in that the hedger who needs to protect, for example, AUD 120,000, faces the dilemma of either being over- or under-hedged. (For examples of futures contract see Peirson, Brown, Easton and Howard 1998).

### Options

Another popular instrument used for hedging FX exposure is the option,

which originated in the 17th century (Hull 1998). An options contract gives the holder the right but not the obligation to either buy or sell an underlying commodity, at a pre-specified price. In the broadest sense, two types of options can be distinguished, call and put options. A call option gives the holder the right, but not the obligation, to buy, while a put option gives the holder the right, but not the obligation, to sell the underlying commodity. The right to perform or not perform certain contractual agreements distinguishes options from forward and futures contracts. Like forward and futures contracts, options have a number of conditions. If taken up, the option must be exercised by a certain date, at a particular price, referred to as the exercise or strike price, which is fixed when the contract is entered. An option contract that can only be exercised on the exercise date is called a European option. Conversely, an American option can be exercised at any time up to the exercise date. A major advantage of an option is that it allows the purchaser to participate in any upside movements, but at the same time, protects from adverse movements.

The purchaser of an option is required to pay a premium. The seller of either a put or call option, who receives the premium, is referred to as the writer. The purchaser of a call or put option is said to have opened a long position, while the seller has opened a short position. A final distinction is between over the counter (OTC) options and exchange traded options. OTC options are more flexible, as the details are negotiated between the two parties involved, for example, a financial intermediary and the customer. Alternatively, exchange traded options are very standardised, are traded through institutions such as the

Australian Options Market and are subject to regulations. (For examples of option contracts see Hull 2000).

### Money market (or spot contract) hedge

The money market hedge is a simple yet effective external instrument for exposure management. It results in the hedger performing all exchange transactions today, and as a result, when contract commitments need to be met in the future to either receive or pay the foreign currency, changes that have occurred in the rate will have no consequence. Specifically, the hedger borrows an amount of money today, and at the same time converts it at the spot rate to another currency. The rule with regard to a money market hedge is that if the transaction to be hedged is a foreign currency payment, the home currency should be borrowed. For example, if an Australian importer owed USD 1 million, s/he would today borrow AUD and convert these spot (today) into USD. These USD are then invested in the US so that with interest the amount grows to what the Australian importer owes. When the money is due, the importer simply withdraws the money from the investment and pays the account. The result of this is that all exchange transactions occur today when the exchange rates are known; no exchange transactions need occur in the future. Of course the importer will need to repay the AUD loan and interest, but there is no need to exchange any currencies as this is in AUD. Conversely, if the transaction to be hedged is a foreign currency receipt, the foreign currency should be borrowed.

The money market hedge is conceptually equivalent to using the forward market. The cost of a forward hedge depends on the appropriate forward quote, while the cost of a money market hedge is based on interest rate differen-

tials. IRP ensures that these costs are nearly always the same; when they are not, a covered interest arbitrage opportunity will exist which typically will be quickly exploited by arbitrageurs, effectively restoring parity (Eiteman, Stonehill and Moffett 1998). As a result, money market hedges are only preferable to forward hedges when firms have the skills and resources to search for disequilibrium in the forward and interest rate markets. It is most unlikely that many firms will have the resources necessary to do this. Further, as the money market hedge requires firms to borrow a particular currency at short notice, established credit facilities providing ready access to various currencies are essential. Again, many firms are probably unlikely to have such resources.

#### Swaps

According to a 1993 report tabled by the Bank for International Settlements, swap market activity accounts for 40 per cent of the overall reported turnover in the surveyed FX market. This places it clearly as the second largest market behind the spot market. Swaps are a relatively new instrument when compared to forward contracts. They were developed in the 1980s as market players became increasingly sophisticated and the markets became more volatile (Das 1989).

There are many different types of swaps. Those that are useful in transaction exposure management are a combination of forward and spot contracts, involving the simultaneous purchase and sale of a foreign currency on different dates (see Eiteman, Stonehill and Moffett 1998 for more detail).

#### Overseas currency accounts

A theoretically simple method that can be used by companies to protect them-

selves from FX exposures is to hold overseas currency accounts. Holding an account with a bank in a foreign country, in which the company conducts business, ensures that the company has easy access to that foreign currency.

While the overseas currency account is an effective tool for FX exposure management, it does present a number of problems. Most importantly, it requires the customer to hold a bank account in a foreign country and maintain at least some level of funds to keep the account active. This money, while earning interest, presents the firm with an opportunity cost if funds are limited. Further, the firm may have dealings with many foreign countries, thus compounding these concerns. Also, taxation and accounting issues need to be considered.

#### Summary

The preceding discussion has classified the instruments available to firms to hedge FX transaction exposure into internal and external instruments. Internal instruments are ideally suited to the large firm with overseas subsidiaries. However, smaller firms in strong bargaining positions may be able to use invoicing. External instruments require another party, such as a financial intermediary. The FEC and the overseas currency account are the simplest of the external instruments. Futures are similar to FECs; but differ in that futures are standardised. An AUD futures contract does not exist in Australia due to low liquidity, although AUD futures contracts can be traded through Chicago. Option contracts have the advantage of hedging the exposed position against downside risk, while allowing upside potential, but because of this flexibility tend to be expensive.

Shapiro (1996) suggests that when the amount owing or owed is known with

certainty, an FEC is the preferred hedge. However, when there is uncertainty regarding the amount owing or owed, an option is superior. Eiteman, Stonehill and Moffett (1998) suggest that the choice comes down to the degree that the firm is risk averse. For example, if the firm is only interested in certainty they should prefer a forward contract. Alternatively, an option should be preferred if the firm is prepared to pay a premium to benefit from any upside potential. An FX swap uses a forward contract as the hedge, while a money market hedge is only preferred to a forward when disequilibrium exists. ■

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