Box B: The Use of Leverage in Financial Markets

One of the revelations that emerged from the recent market turmoil was that the positions being carried by hedge funds, and the extent to which banks had funded them, were much bigger than most observers had appreciated. These firms were able to run large positions relative to their capital bases because markets have evolved ways of funding positions which are very economical in terms of capital requirements. This box outlines typical ways in which market participants can leverage themselves in financial markets.

Repo markets

In securities markets, positions are usually funded through repurchase agreements, or repos. These are a form of collaterised loan, on which the lender takes a margin or 'haircut' to protect itself against adverse movements in the price of the securities used as collateral. In government securities markets in most industrial countries, haircuts usually run at 2 per cent of the value of the loan, though they can vary with the maturity of the security. Thus, a hedge fund that had $2 billion in capital could, through repos, borrow enough to fund a holding of $100 billion of securities by applying the capital to haircuts – i.e. it could gear up 50 times.

The haircuts involved on repos in emerging market securities are larger than those on Treasury securities but still allow substantial gearing. Because these markets had performed well over a run of years, and their price volatility had declined, haircuts had been below levels which could absorb recent falls in values. Lenders reacted by calling in increased margins, and the de-leveraging that followed proved very disruptive to market conditions as positions were forcibly and quickly cut.

Derivative markets

Gearing can also be generated through derivatives markets since purchases or sales of derivative contracts do not require immediate payment of the full face value of the contracts; rather, only a margin needs to be paid. As initial margins are typically less than 2 per cent for bond contracts and less than 6 per cent for equity contracts, investors can take on exposure to market positions that are many multiples of their capital. With options, the extent of gearing that can be attained depends on the premia that investors need to pay, which vary with market conditions and the characteristics of the options. In most cases, however, the premium is only a small percentage of the face value of the option, so very high gearing can be attained.

Foreign exchange markets

In foreign exchange markets, the ability to acquire positions without having to commit capital is relatively unconstrained. This is because most deals tend to involve the exchange of one currency for another, rather than the exchange of cash for securities, and therefore haircuts are not taken.

There are two key elements involved in taking a speculative currency position: first acquiring the position; and second arranging the funding. Taking recent events in Australia as an example: hedge funds sold Australian dollars in June to establish short positions in order to profit from the expected fall in the currency. This was done by arranging deals with a bank to sell Australian dollars in exchange for US dollars for normal 'spot' settlement (i.e. within two business days). Because the hedge funds were establishing short positions, in the sense that they did not own a corresponding amount of Australian assets to start with, they needed

to generate Australian dollars within two days to meet the deliveries to which they had committed.

The typical way in which such a short position would be covered is by entering into a foreign currency swap transaction. Under the first leg of the swap, which is timed to coincide with the settlement date of the spot transaction, the hedge fund would buy Australian dollars and sell US dollars – i.e. the reverse of the spot transaction – so as to effectively cancel out the flows of funds, as shown below. In the second leg of the swap, the hedge fund would provide Australian dollars and receive US dollars on an agreed future date.

Example: Establishing and Funding a Short Position in Australian Dollars

Day 1	Sell Australian dollars for US dollars in the spot market (delivery due Day 3).
Day 2	Undertake a currency swap, with first leg to involve the purchase of Australian dollars and sale of US dollars (delivery due Day 3), and the second leg the sale of Australian dollars and the purchase of US dollars at some future date.
Day 3	Undertake settlement: – receive Australian dollars from swap counterparty and deliver them to spot counterparty (net flow is zero). – receive US dollars from spot counterparty and deliver them to swap counterparty (net flow is zero).

Through these transactions, a hedge fund is able to take a position in the currency market without needing to supply either Australian dollars or US dollars until some point in the future. Effectively, all it has is a forward commitment, which requires neither capital nor any immediate funding.

The cost of the swap to the hedge fund is the difference between Australian and US interest rates for the period of the swap. This is built into the exchange rates agreed for the second leg of the swap, so again there are no up-front payments.

Swaps can be undertaken for any term, but are mainly for short periods – out to one week. If the exchange rate has fallen before the maturity of the swap, the short-seller can buy Australian dollars in the spot market at a profit to deliver into swap commitments. If not, the position can be rolled forward for a further period (or, of course, closed out at a loss).

The only constraint on the size of the positions hedge funds can undertake through these transactions is the willingness of banks to provide forward foreign exchange facilities. This depends on the banks' assessment of the risks involved and on the amount of capital they need to allocate to support the facility in accord with prudential requirements. Banks only undertake the transactions with the counterparties for which they have established credit limits, which restricts the types of counterparties which can access large positions in this way. But hedge funds, with a history of high returns and a substantial market reputation had no trouble gaining access to large credit limits from banks, particularly as they generated so much income for banks through their trading activities. In fact, so strong was the standing of hedge funds that they often insisted that banks which wanted to deal with them also provide funding.

From the banks' side, there are constraints in the form of capital requirements imposed under the Basle capital adequacy rules. These, however, apply only to swap contracts for settlement in more than 14 days, and even these are very small. For example, the capital requirement on swaps with maturities between 14 days and one year amount to only 0.04 per cent of the value of the contract. In other words, a $A100 forward facility provided to a (non-bank) investor requires the bank to set aside 4 cents of capital. ✠