M&A flows and the foreign exchange markets: practical experiences [*]

MARTIJN A. SCHRIJVERS

1. Introduction

Explaining foreign exchange movements is a hazardous task. General equilibrium models provide some insight into the possible equilibrium value in the long run, but do not indicate in which time frame this equilibrium is possibly reached (Rosenberg 1996). The interest rate parity theory and calculations based on the purchasing power parity approach may generate some insight too, but the results are often not in line with actual movements, as shown for example by Adler and Lehman (1983). Financial markets are increasingly focussing on other determinants. The continuous outflow of capital from the Eurozone into the United States' stock markets in particular has been indicated as an explanation for part of the depreciation of the euro *vis-à-vis* the dollar. In addition to these flows, the large foreign direct investment flows resulting from merger and acquisition (M&A) activities have received a certain amount of attention. However, the effects of these flows on exchange rates are difficult to assess. The financial details of M&A deals are seldom made public. I therefore tackle investigation into the effect of M&A transactions with a more micro-oriented approach, interviewing the Treasurers of a number of

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□ De Nederlandsche Bank, Financial Markets Department, Amsterdam (The Netherlands); e-mail: m.a.schrijvers@dnb.nl.

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multinationals who have carried out major take-overs, mostly in the United States. Based on their experiences I give an overview of the techniques used to conduct large foreign exchange transactions resulting from M&A deals and the effect of these transactions on the foreign exchange rate as observed by the Treasurers. First, a short overview is provided of the size and developments of M&A transactions. Second, I explain the methodology used in this paper. I then go on to discuss the considerations underlying multinational companies' decisions regarding the financing of take-overs and the payment techniques to be used, in order to gain insight into which part of the total M&A transaction actually leads to a forex transaction. Subsequently, I look at the various ways of conducting forex transactions. Finally, I discuss the effect Treasurers believe M&A transactions to have on exchange rates, and examine whether different techniques make for different effects.

2. M&A activity

M&A flows have expanded materially since 1999 as a result of various factors including globalisation, deregulation, privatisation and the introduction of the euro. Andrade, Mitchell and Stafford (2001) stress that deregulations are a particularly important factor in the increase in M&A activities. Furthermore, the long economic upturn in the US persuaded a lot of European companies to invest in the United States. In 1998, the total amount of cross-border M&A was USD 710 billion. Rising by 90% to USD 1,348 billion in 1999, the total remained around this level in 2000.[1] Preliminary figures for the first half of 2001 suggest that M&A activity has somewhat slowed down, but still remains well above the levels recorded before 1999. European companies taking over American companies have generated a large part of the flows. In 2000, 44% by value of deals were accounted for by the euro area, against only 20% by the United States. Around 38% by value of deals were used to take over American companies, compared with only 15% in the euro area. This caused a negative balance for

[1] Data from Goldman Sachs (2000 and 2001).

the euro area of USD 270 billion and a surplus for the United States of nearly USD 170 billion in 2000. However, we should recall that this is only a part of the substantial flow going back and forth daily in the euro/dollar-market. We would have to analyse the relative importance of the Foreign Direct Investment (FDI) flows compared with the other flows to gain insight into the effect of FDI flows on exchange rates. As the foreign exchange market is an over-the-counter (OTC) market, there is no actual market place where flows are visible or registered. Many transactions, and especially the very large ones, are conducted on a bilateral basis without being registered at some central point. Moreover, M&A deals are in general conducted in secrecy, given the large financial interest involved. Except for the tri-annual BIS survey, there are hardly any statistics on foreign exchange market turnover, liquidity and deal sizes. Without these statistics it is difficult to assess whether a billion dollar/euro-transaction is actually moving the markets at the time of execution. Furthermore, some of the public data can be distorted if we only want to investigate the effect of the M&A-related foreign exchange transaction. The announcement of the intended merger or take-over alone can suffice to generate exchange rate volatility, which sometimes seems unrelated to the M&A transaction itself. I shall revert to this phenomenon in Paragraphs 4 and 7. Second, there are also indications that forex dealers consider M&A flows as indicative of the relative strength or weakness of the European and American economies. Over the past three years the differences in expected growth rates have in particular seemed to be among the determinants of movements in the euro/dollar exchange rate. The fact that forex dealers use M&A announcements as a sign to start trading for reasons largely unrelated to the M&A transaction itself makes it difficult to isolate the effect of the M&A transaction on the exchange rate.

3. Methodology

Given the lack of recent data and the noise in the data caused by, among other things, the announcement effect, the most direct method to obtain information about the effects of M&A transactions is to

interview the market participants actually involved in executing the deals.

I sent questionnaires to Treasurers of 5 multinationals actively involved in M&A transactions. Thereafter I interviewed them to gain further insight. The companies all rank in the top-50 list of European companies on the basis of capitalisation weight, and were selected on the basis of the volume of M&A transactions (measured in total deal size) executed in the period 1999-2001. I recognise that the number of companies and their transactions is limited. However, very large M&A deals such as could move forex markets occur only infrequently, and the data will therefore always remain limited to a small number of events. The actual size of the transaction is important, because one transaction of USD 5 billion is likely to have more influence on foreign exchange rates than 10 transactions of USD 200 million. It is not possible to disclose details of individual cases since all the interviews were conducted in strict confidentiality. All the interviewed companies together had taken over 126 companies in the last three years. For our research only acquisitions outside the euro area were relevant because, generally speaking, intra-euro area transactions do not involve foreign exchange transactions. 71 of the take-overs were concluded outside the euro-area. In 68% of these cases the deal size was made public, totalling USD 67 billion.[2]

The preliminary results of this study were discussed in a commercial banking working group. Commercial banks act as intermediaries for the M&A transactions and in most cases advise companies on the financing strategy including the use of different financial instruments. Furthermore, the results were discussed with institutional investors, who were asked for their experiences as market participants with the influence of M&A transactions on foreign exchange rates. Both groups confirmed that our analysis and conclusions were in line with their observations.

All the financing methods and financial instruments described in this paper were actually used by the companies in our sample. Although the techniques explained in this paper are applicable to most

[2] Non-USD/EUR-transactions are denominated in US dollars using the exchange rates of 27 November 2001. On the basis of these data it is not possible to draw conclusions as to the total amount for the five companies, since some very large acquisitions influence the sample.

currency pairs, the Treasurers' experiences are mainly of transactions in the euro/dollar-market.

4. Determinants of the financing methods

M&A transactions can be financed in four ways: from the available cash, with issuance of debt certificates, with bank loans and with issuance or transfer of shares. These methods are often used in combination and, except for the transfer of shares, they all (drawing on the cash position, bank loans and the issue of debt certificates) entail cash payments. As the transfer of shares does not involve a forex transaction, it has no direct impact on the foreign exchange market. However, it may have an indirect impact, as will be explained at the end of this paragraph. Cash payments are as a rule made in the local currency of the company to be acquired, but this need not involve a forex transaction. Bank loans may be obtained and debt certificates may be issued in local currency, while a foreign subsidiary of the company making the take-over may already have the cash at its disposal in the right currency. Of the amount involved in M&A transactions catching the attention of the financial media, only the cash part in the non-local currency is relevant to our analysis of how M&A transactions may affect exchange rates. This is currently recognised by the financial markets. Several major banks publicise research papers with estimations of the foreign currency cash-component of M&A deals.

In practice the choice of both the financing method and the payment technique were barely influenced by the situation in the foreign exchange markets. The choice was mainly based on four elements: the company's views on corporate financing, the company's solvency and liquidity position, the flow-back problem and institutional differences between countries. Only in the case of very large transactions or transactions in illiquid forex markets did the potential problems posed by the execution of the forex transaction seem to outweigh the corporate financing considerations. The fact that in liquid markets the situation in the forex market is not taken into account is remarkable because market volatility and liquidity may influ-

ence the take-over price, notably if a large part is paid in cash and the currency position is not hedged. Volatility can generate greater uncertainty about the exchange rate at which the transaction is eventually effected. Low liquidity increases the impact of announcement of the M&A transaction, while the announcement effect consists in dealers taking positions in anticipation of the cash flows ahead. The positioning in itself may move markets and, given the limited information available to market participants, lead to overshooting of exchange rates. In many cases substantial intra-day movements in the euro/dollar exchange rate were to be seen after the announcement of major M&A deals. In illiquid markets this effect may be substantial, and therefore important, because the announcement effect is always detrimental to the acquiring company if its forex position has not yet been hedged.

One of the main determinants of the financing method and payment technique is the company's views on corporate financing. Some of the companies issued shares on a regular basis, whereas others had not increased their share capital since they were established. The companies interviewed have in common that they generally seek to avoid large forex positions in their cash flows, because taking forex positions is not their core business.

Another determinant is the multinational's solvency and liquidity position. In today's financial markets, with their transparency and rating agencies, a significantly deteriorating solvency position soon prompts a downgrading of the rating, increasing the costs of borrowing. A company whose rating is depressed owing to a high debt-equity ratio will be more inclined to finance a take-over by means of the issuance of shares than a company with a sound solvency position. Low solvency can be detrimental, but so can excessive solvency. Shareholders closely watch a company's leverage for possible indications of its future profitability. An unduly low leverage lowers shareholder value, thus depressing the share price. In this case borrowing from banks or issuing debt certificates to finance a take-over is the more obvious choice.

Not only the overall solvency of a company but also the solvency of its components is important. Most companies considering a take-over already have a subsidiary in the country of the business they intend to acquire. As this allows them to borrow locally, they do not need to engage in forex transactions. In the event of a large take-over,

however, the local subsidiary will in most cases not have sufficient borrowing potential to finance the entire take-over. The choice then usually made is a combination of financing directly by the parent company and borrowing locally. Finally, the liquidity position also plays a role. Companies with considerable liquid assets tend to use them to finance a take-over, accepting the inconvenience of the large forex transactions usually resulting from such a choice.

The third determinant of financing methods is the problem of flow-back. Share issuance is often the most advantageous choice to finance take-overs from the perspective of the solvency and liquidity position, but paying in shares may be accompanied by risks. The most serious risk is a decline in share price resulting from a flow-back arising when new shareholders immediately sell their newly acquired shares again. The chances of such flow-backs have increased for two reasons in particular. First, the number of investors who follow some specific index has clearly gone up. If a European multinational takes over a company included in a given index, the index investors may be paid in shares that are not included in that index. This often prompts portfolio managers to sell the new shares immediately. Second, many take-overs bear an international character. If an American company is taken over by a European corporation, the shareholders get paid in the European corporation's shares. These shares are rarely denominated in dollars, so that investors suddenly find themselves faced with additional foreign exchange risk and a regional mismatch.[3] This may be a reason for investors to sell them as soon as possible. The chance of a flow-back diminishes if the European corporation is able to pay in shares that are listed on an American stock exchange, partly because these are dollar-denominated. However, such a listing cannot be achieved at short notice because of the various operational and accountancy requirements. In practice, this means that listed companies can capitalise on their listing, but that unlisted companies are unable to acquire a listing in the United States just before taking over a company there. The chances of a flow-back can be reduced further if a large international bank is enlisted to manage the share issue as well as the take-over itself, so that shares can be placed with their interna-

[3] For most international firms it is not directly clear how large their currency exposure actually is. An American firm with a lot of subsidiaries in Europe has a euro/dollar-exposure. So even if their shares are denominated in US dollars, the value of the shares is still influenced indirectly by exchange rate movements.

tional customers, who are used to handling internationally diversified investment portfolios. Although a payment in shares does not necessitate a forex transaction, a possible flow-back could influence the exchange rate. Investors sell their newly acquired shares partly because the currency in which they are denominated is incompatible with their portfolios. This means that the sale of such shares is followed by a forex transaction whereby the cash is converted into the desired currency. In the event of a substantial flow-back, the size of the transaction in the foreign exchange market may approximate that of a cash take-over. However, the transactions are probably less concentrated than in the case of a large cash payment.

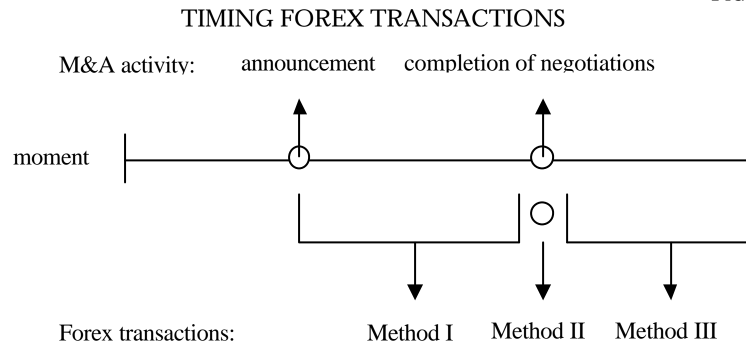
Finally, the financing method may be determined by institutional differences between countries. Differences in tax systems may, for instance, favour payments in shares over cash payments or conversely. In addition, with the legal systems and regulations differing from country to country, some financing constructions may be ruled out altogether.

5. Exchange rate risk in a M&A transaction

The choice of financing method determines which part of the take-over is paid in cash and which part in foreign currency. The entrepreneur's attitude towards exchange rate risk subsequently determines which financial instruments are used in the foreign exchange market. Two corporate attitudes may be distinguished here. The first entails that, during the take-over negotiations, the Treasurer guarantees a fixed exchange rate as from a certain date by means of hedging so that the management knows exactly what the take-over price denominated in the home currency is. This exchange rate can then be included in the strategic analysis of the take-over or merger. It thus becomes possible to estimate the ultimate bid at which the take-over is still profitable. Here, this method will be indicated as Method I. The second corporate attitude entails that the Treasurer hedges the forex positions only when the deal has been definitively concluded. This method will be called Method II. The difference between these two methods is based on differences in the way companies deal with foreign exchange risks (see Figure 1).

FIGURE 1

TIMING FOREX TRANSACTIONS



Given the background of progressive internationalisation, an increasing number of international companies opt not to hedge the exchange rate risks on their balance sheets coming from their foreign participations or foreign subsidiaries (it is important to note that this does not mean that cash-flow-induced exchange rate risks are not hedged either, for hedging this risk is in fact common practice for most companies). The company warns shareholders of this exchange rate risk and the shareholders can, if they wish, hedge the risk in their own portfolios. If the conversion risk is not hedged, it could be argued that the exchange rate risk inherent in the purchase price of the company to be acquired need not be hedged either (Method II). If the purchase expressed in euro turns out more costly owing to a less favourable exchange rate, the new business entity is shown on the balance sheet at a higher price. A higher purchase price also means that (if the exchange rate remains unchanged) the cash flow generated by the business entity acquired will also have a higher value in euro.

A counter-argument to the foregoing might be that, as result of its decision not to hedge the conversion risk, the company has indeed an open foreign exchange position, which might prompt a higher usage of the parent company's financial resources if the business entity has to be acquired at a lower euro exchange rate. In theory, one might argue that if a take-over stands a good chance of being realised, at least a large part of the foreign exchange position should be hedged. This means that companies that do not take action before the take-over has been finalised are in fact taking a foreign exchange position. In practice, in most of the cases at least part of the positions were hedged (Method I) when companies were executing very large deals. This is to

be expected because such deals tend to generate an unfavourable market reaction, thus increasing the chances of exchange rate fluctuations, detrimental to the company making the acquisition.

For some companies, internal organisational considerations may be a reason not to hedge the exchange rate risk. If the Treasurer hedges the exchange rate risk before the take-over is realised, and the take-over is called off, a possible exchange rate loss may be taken to the Treasury's profit and loss account. Hedging the exchange rate position is then seen (from an accounting viewpoint) as a speculative action to be charged to the Treasury. If the exchange rate risk is not hedged, and the take-over is realised at a less favourable exchange rate, the purchase of the business entity is merely included in the balance sheet at a higher price, and the Treasurer's Profit & Loss position is not affected. This provides an incentive to Treasurers not to hedge the exchange rate risk prematurely.

As is often the case, there is a third road. Some companies do not hedge the exchange rate risk before the deal is concluded, but they do allow their Treasurer to spread the transaction over a certain period once the deal is closed. The available capital of the company (in, say, euro) obtained, for instance, through the issuance of debt certificates or payment out of their own cash position, is first converted into the currency desired with a euro/dollar swap so that the cash payment can be effected. Following this payment the Treasurer has the possibility to close the open forex positions at a time that suits him with an outright purchase of dollars. This is Method III.

6. Technique of forex transactions

Companies that do not hedge their exchange rate risks in advance (using Method II) usually resort to outright purchases of foreign currency when the take-over has been executed. These relatively simple transactions can be concluded by the company's own treasury by dividing the amount into smaller tickets. Amounts of around USD 1 billion can be traded in the euro/dollar market daily without affecting the exchange rate. Larger amounts can also be traded without causing too many problems as long as the transactions can be

spread over several days. For very large amounts, or for transactions in less liquid markets, the company may request banks to take over the entire position. The number of banks capable of taking over such large positions is relatively limited and the compensation charged is substantial, which is significant of these large banks' awareness of the possible impact of such amounts on the exchange rate and the risks inherent in taking over the entire forex position. In cases where guarantees are required, for instance for a minimum exchange rate, it becomes even harder for banks to calculate a price, and the result is a higher margin.

If exchange rate risks are hedged while negotiations are still going on (Method I), more complex financial instruments are used. The use of outright currency purchases before the deal is concluded is not a very obvious choice, as it would absorb an excessive amount of liquid assets for probably a long period. Take-over negotiations may vary from several weeks to a whole year. As an alternative, companies may use forward transactions and option constructions, or combinations of the two. As both products are off-balance-sheet, a relatively limited amount of liquidity is absorbed.

For a long time interest rates in the United States were higher than in the euro area, with the consequence that dollars could be purchased more cheaply in the forward market than in the spot market. As this hedging method seems to cost nothing (the Treasurer could guarantee their management a better rate than the current spot rate without any premiums to be paid), it was a solution that had decided attractions.[4] In the case of other hedging methods the initial costs are higher, making the decision to use these kinds of financial constructions more difficult. Because of the reversal in interest rate spread between the US and the Eurozone since April 2001, forward points are now negative for dollar buyers, making this hedging method possibly less attractive.[5]

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[4] The rate of the forward currency is solely determined by the interest rate differential between the two currencies. According to the uncovered interest rate parity theory (Rosenberg 1996) the fact that at that time interest rates in the United States were higher than in the euro area implies that the financial markets expected a depreciation of the US dollar *vis-à-vis* the euro. Therefore, forward market dollar rates were lower than the the spot rate.

[5] In the beginning of 2000 the short term interest rate differential between the United States and the Eurozone was around 150 basis points (bp). The current situation shows a reversal of spreads: in June 2001 European 6-month interest rates were

A disadvantage of hedging exchange rate risks by means of forward contracts is that the foreign exchange is delivered even if the M&A deal falls through. This is not the case with options, but they have as a disadvantage that they are fairly expensive. Given the high costs of options, foreign exchange exposure is likely to be hedged by means of out-of-the-money or at-the-money options; in-the-money options are often considered too expensive.[6] As the Treasurers' only real worry is a deteriorating exchange rate, they resort above all to the purchase of large numbers of euro put options. For reasons of cost control, it might be worth considering selling euro call options at a higher exercise price. When this is done in series, a collar emerges.

Under Method III, the take-over amount is obtained in foreign currency through the conversion of euro into dollars via a euro-dollar swap. The euro-dollar swap market is a very liquid and accessible market: amounts of up to USD 7 billion can be absorbed without too much difficulty. The actual cash transactions can be spread over a fairly long period of time, so that the size of individual trades can be reduced. This transaction is in general a normal outright foreign exchange purchase via the company's own dealing room.

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25 bp higher in comparison with American 6-month rates. The forward points consequently fell from +113 in June 2000 to –25 in June 2001.

[6] Out-of-the-Money: a put (call) option where the asset price is higher (lower) than the strike price; In-the-Money: a put (call) option where the asset price is lower (higher) than the strike price; At-the-Money: an option in which the strike price equals the price of the underlying asset. OTM and ATM options are always cheaper than ITM options because they have no intrinsic value at the time of buying. If a company hedges with OTM options they are not fully hedged, i.e. by buying a euro put with a strike at EUR/USD 0,85 and a current spot rate of EUR/USD 0,90, a depreciation of the euro to a level of EUR/USD 0,85 is not hedged. Companies are willing to take this risk because of the price difference: i.e. the cost of hedging EUR 1 billion around mid-2000 was EUR 23 million for an OTM option strike EUR/USD 0.88, EUR 26 million for an ATM option and EUR 34 million for an ITM option strike EUR/USD 0.90 (option prices are calculated on the basis of a Black and Scholes model for a maturity of three months, European-style, an implied volatility of 13 – the average since 1 January 2000 –, 3-month interest rates, EURdeposit 4.58% USDdeposit 4.76% and a spot rate of EUR/USD 0.8856).

7. Effect on the foreign exchange market

A company seldom undertakes transactions before the take-over is announced. In the current mature markets companies have to disclose price-sensitive information at an early stage. The announcement that exploratory discussions are going on with a company is generally made in such a tentative stage of the negotiations that covering a forex position would seem premature. Actual negotiation times in our sample varied for most cases from 1 to 9 months. Most Treasurers started to hedge after some insight was gained into the chance of a positive result. This was in some cases several months before the completion date. The exchange rate movements observed directly after the announcement, or in other words upon the announcement effect, are the result of foreign exchange dealers anticipating future currency flows. Although this behaviour may be based on the old piece of market wisdom "buy the rumour, sell the fact", in some cases it is questionable how big the fact is. In most cases the Treasurers considered the market fluctuations excessive. Market perceptions about the cash component often clearly amounted to overestimations of actual developments. Markets underestimate the possibilities open to companies to avoid forex transactions by using financing constructions with, for instance, foreign subsidiaries. However, the Treasurers did not consider the announcement effect a major problem. While the exchange rate did in general react to an announcement, after an initial jump the effect would wear off in the course of several days.

Of the transactions undertaken before the take-over was concluded (Method I), the forward transactions sometimes had a discernible influence on the euro/dollar exchange rate, because the purchase of a forward contract prompts an immediate spot market transaction on the part of the selling bank for the same amount as that sold forward to hedge its position. Moreover, the purchase of put options caused movements in the euro/dollar market. These spot market fluctuations were caused by the hedging behaviour of the banks that had sold the options. Most banks seek to maintain a delta-neutral position on their options portfolio. In the case of at-the-money options the delta is around 0.5. In order to have a delta neutral position, half the amount involved in euro-dollar put options is immediately hedged in

the spot market. As banks are loath to take large open positions, they cannot spread their transactions over a longer period of time, which means that large spot transactions need to be accommodated by the market, possibly leading to price movements. The euro/dollar forex transactions undertaken around the time of the take-over (Method II) influenced the exchange rate in some cases, but these effects were often small.[7] The forex transactions were executed in one day or at any rate a limited number of days. Finally, no exchange rate movements in the euro/dollar were observed in the case of Method III, which involved obtaining the foreign exchange via a swap transaction, and then phasing out the foreign exchange position gradually after the take-over. This phasing period could vary in our sample from some weeks up to three months.

As even the very large banks are not prepared to run significant exchange rate risks, the technique used is almost immaterial for the effect on the exchange rate. Irrespective of whether it has resorted to forward contracts, put options or outright sales, the bank will immediately hedge its exposure in the spot market. It is only in the case of a swap transaction that no forex position needs to be hedged as the seller of the swap has mainly interest rate risk and no foreign exchange position. The size of the transaction proves to be the main determinant for the effect on the exchange rate. Only in the case of very large transactions were significant movements in the spot market observed.

8. Conclusions

M&A activities have been increasing considerably over the past three years. Most of the activity was concentrated on M&As between corporates in the United States and the Eurozone. On a net basis there was a steady outflow of capital from the euro area into the US. These flows coincided with weakness of the euro. Financial markets

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[7] It is, however, to be noted though that most of these transactions in my sample did not involve very large amounts (not in excess of USD 3 billion). Technically speaking there is no difference between an outright transaction and a forward contract indirectly causing an outright transaction by the bank selling the forward contract in order to square their position.

started to focus on these flows as explanatory variable for future exchange rate movements. Because of the secrecy surrounding these deals, it is difficult to judge if this focus is justified. We interviewed market participants actually executing these deals in order to get some insight into the possible effect of M&A deals on exchange rates. Given the focus of the financial markets on M&A flows, it is remarkable that in most cases the situation in the foreign exchange markets does not influence companies' decisions with respect to the financing techniques of take-overs. These decisions are determined to a greater extent by factors such as the company's philosophy on corporate financing, the solvency and liquidity position and the chances of a flow-back. A flow-back is the result of the selling of shares used in payment of the acquisition by investors, because the characteristics of the shares do not fit into their portfolios. A flow-back may reduce the for the company increasingly important share price.

Companies executing M&A transactions use different instruments and different moments to hedge their currency position. Some of them start hedging before the completion of the deal, some of them close their forex position at the point of completion and, finally, others roll their forex position over for some time. The choice of technique for hedging foreign exchange positions, such as forward contracts, put options and outright purchases, does not influence the foreign exchange markets by itself. Whatever the technique used, the seller of these financial products will invariably hedge his exposure, causing a transaction in the spot market. Although in recent years, announcements of major take-overs often resulted in exchange rate movements in the euro/dollar market, in general the M&A transaction caused no large flows at that time. While it is possible that foreign exchange dealers anticipate future cash flows, the Treasurers felt that these were being systematically overestimated. When transactions are actually executed, only very large transactions or transactions in less liquid markets influence exchange rates. The liquidity of the euro-dollar spot market seems to be adequate, as medium-sized transactions, until USD 3 billion, can be absorbed by the euro/dollar market without real difficulties if spread over several days. Many companies effect such transactions themselves. It is only with very large transactions that some movements are visible. In some of these cases, the entire foreign exchange position is transferred to a bank at usually considerable cost.

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