



# The Management of Exchange-Rate Risk: A Case from the Manufacturing Industry

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## Executive Summary

*This article looks into the management of exchange rate risk at a U.K.-listed company. The focus is particularly on the firm's operating exchange risk, for which it uses a synthesis of three different risk management approaches. These include the use of long-term financial hedging instruments, operational adjustments based on real options theory, and the currency denomination of debt. Practice at the case company is unique, in that the former approach has been considered inappropriate by the theoretical literature and the latter is seldom used to manage firms' real cash flow exposures. In general, it has important implications for multinationals, especially with reference to the use of operational adjustments and the currency denomination of debt. © 2004 Wiley Periodicals, Inc.*

## INTRODUCTION

Exchange-rate risk constitutes one of the most common forms of risks that firms in the international arena encounter, and in recent years, the management of this risk has become one of the key factors in overall financial management (Marshall, 2000; Werner, Brouthers, & Brouthers, 1996). This article reports the risk management practices of a large U.K. company. In particular, it focuses on the firm's operating exchange risk, although it does draw some

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Thunderbird International Business Review, Vol. 46(3) 317-338 • May-June 2004

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DOI: 10.1002/tic.20011

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attention to the other forms of exchange risk. There is limited empirical research in this area at present and this represents a significant gap in the literature, since results from prior studies indicate that corporate practices may be less than optimal because there are large discrepancies between theory and practices at multinational companies (MNCs). Practices at ABC plc,<sup>1</sup> the case company, illustrate the practical application of real options and use of the currency denomination of debt and financial instruments to manage its operating risk. These may, in turn, serve to inform practices at other MNCs.

Before looking into the specifics of exchange risk management, the account below starts with a consideration of how corporate risk management, in general, may influence corporate market value. In a world with complete and perfect markets, corporate risk management cannot enhance shareholder value because shareholders can manage the risk themselves (“home-made” hedging) or more appropriately, they can diversify their risk through portfolio investment. In the real world, however, where information is not easily and costlessly available, shareholders may not be optimally placed to diversify

away and/or manage all potential risks. Further, risk management at the firm level will serve to reduce its total risk (fluctuations in income), which will, in turn, influence overall value by reducing the costs of financial distress by stabilizing cash flows; reducing tax charges, where a progressive tax system is in place and reducing monitoring costs by improving shareholder performance evaluation (Meulbroek, 2002). Further, Froot, Scharfstein, and Stein (1993) showed that income stabilization increases the potential for a firm to invest in new value-adding investment projects by guaranteeing a consistent stream of cash inflows with which to invest.

Within the scope of the unambiguous objective to enhance shareholder value, managers need to determine the bases of their financial risk management strategies. Of the two options available, they need to decide whether they intend to manage their downside risk while retaining upside potential or whether they need to manage both their downside and upside risks. While the latter strategy confines cash flow volatility within very specific limits, the former strategy allows the potential of higher returns. The individual circumstances facing the firm, and the relative costs of pursuing one strategy over the other, will help determine

<sup>1</sup> This is a fictitious name, used to protect the identity of the company.

its optimal course of action (Meulbroeck, 2002). Further, the firm will need to consider whether it will hedge all its exposures or only a part of them. Finally, there may be considerations of whether it classifies its risk in terms of a change in reported earnings or a change in cash flows—value measures that are theoretically the same but differ in reality.

Moving to the context of exchange-rate risk specifically, this risk has been commonly categorized into three different forms to assess its impact on overall firm value. These three forms are translation risk, transaction risk, and operating exchange risk. Translation risk is an accounting risk; it represents the translation gains and losses that arise when firms restate the financial statements of their foreign subsidiaries into parent currency terms for the purposes of consolidation. This risk, concerned with the external reporting of past events, is not considered to have any meaningful implications for the future cash flows and, in turn, for the market values of firms (Dufey, 1972; Srinivasulu, 1981). Consequently, academics advocate that this risk should not be managed.

Transaction exchange risk is a cash flow risk that materializes when companies seek to convert their committed, foreign currency cash flows into home currency

terms, and the rates of exchange here are not known with certainty. For most MNCs, this is the most obvious and easily identifiable form of exchange rate risk—accounting records of future receipts and payments in foreign currencies will give the firms an indication of their exposure levels across different currencies. Companies may use a variety of tools and techniques to manage their transaction risk. They may, for example, use financial instruments such as forward contracts to introduce the certainty of exchange rates at the time when the transactions are first engaged into. Alternatively they may use options contracts to preserve the possibility of an upside potential, while protecting themselves from a downside risk. Transaction risk management practices have been widely surveyed and, together with observing the use of a range of financial products, researchers have found that a majority of firms follow a “selective” hedging strategy (Glaum, 2002). That is, they hedge only those positions in which they expect a currency loss, while leaving open all other positions in which they expect a currency gain. This strategy clearly relies on managers’ forecasts of future exchange rates.

Operating exchange-rate risk is concerned with the effect of long-term movements in exchange rates on a firm’s expected future

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cash flows, and in turn on the overall market value of the firm. Exchange rates here can have a more profound effect on the future cash flows of a firm (than in transaction risk) since the cash flows are not committed. Consequently, movements in exchange rates may actually alter the firm's abilities to generate these cash flows by influencing their level of sales, prices, and input costs.

In globalized industries, firms typically sell in a number of markets with different currency habitats, often in competition with firms whose cost structures differ along the currency dimension. Adverse movements in exchange rates may, as a result, create large misalignments between (1) the company's cost structure and its revenue structure and/or (2) the company's cost structure and its competitors' cost structures (Dufey, 1972; Lessard, 1989). When quoted in a common currency, these currency movements will result in the level of costs of the company increasing as compared to its revenues in the former instance. In the latter instance, they will increase as compared to the competitors' costs. In both instances, the competitive profile of the firm may alter considerably and result in a loss of market share and/or reduced profit margins. In the light of its impact on the business profile of firms, operating exchange-rate risk has been unsurprisingly cat-

egorized as the most important form of exchange-rate risk (Belk & Glaum, 1990; Miller & Reuer, 1998).

Operating exchange-rate risk is difficult to measure and manage. Notwithstanding the innovative and sophisticated nature of financial instruments available today, financial hedging can do little to protect firms from operating exchange-rate risk and can indeed become counterproductive (Belk & Glaum 1990; Soenen, 1991). Hedging a foreign currency denominated cash flow consistently with financial instruments, for example, will do little to eliminate the effects of long-term movements in exchange rates since the hedge rates attained will themselves reflect these trends of the foreign exchange markets (Capel, 1997; Srinivasulu, 1981). Consequently, financial hedging is only a short-term solution that buys companies the time in which to react with a more permanent risk management strategy.

In addition, conventional financial hedging can be counterproductive in that it can actually create operating exchange risk for a firm (Belk & Glaum, 1990; Soenen 1991). There may be instances when the competitors of a firm have the same currency cost structure as itself. If the firm hedges consistently in the financial markets while its competitors do not, the latter can take advan-



tage of favorable exchange rates when they materialize. The company, already tied into forward contracts, will be unable to capitalize upon these exchange rates and will as a result suffer a competitive disadvantage.

Since its conception, two frameworks, qualitative and quantitative, have been developed to assess the operating exchange-rate risk of companies. The quantitative framework uses statistical regression techniques to determine the sensitivity of a company's market value to movements in exchange rates; while exchange rates here comprise the independent variables, corporate market value is the dependent variable. The resulting correlation coefficients that reflect the firm's sensitivity to exchange-rate movements can then be used as a basis of a financial hedging strategy. Lhabitant and Tinguely (2001) and Aabo (2001), however, pointed to a variety of statistical problems associated with the quantitative measurement system and the hedging strategy that stems from it. In reference to the latter, Aabo (2001) wrote, "The optimality of such a strategy is dubious" (p. 385).

The qualitative framework (Miller & Reuer, 1998; Soenen & Madura, 1991) views operating risk as a business risk rather than a financial one, since it alters the competitive profile of a firm. It contends that operational adjustments such as

procurement and marketing mix changes are required to manage the exchange-rate risk. Such adjustments alter the currency mix of revenues and costs to optimize the misalignments as caused by currency movements and, as a result, accommodate these movements. An exporting company may, for example, seek to source some of its input materials from its sales market during a home currency revaluation. Thus, when the level of revenues from this market decreases as a result of the revaluation, the company can be compensated for by a corresponding decrease in its operating costs. Other operational measures include migration of production between existing manufacturing facilities, setting up new facilities and production rationalization strategies. Overall, the qualitative framework views the management of operating exchange-rate risk as a general management issue, one that involves various organizational factors and not merely a technical issue to be left to foreign exchange specialists.

Botteron (2001) discussed the use and value of real options. The author explained that real options add value to strategic decisions by incorporating an element of flexibility in global project evaluation. Flexibility in the context of operating exchange risk would enable companies to actively manage their risk by providing them with the opportunity to switch between manufacturing sites,

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suppliers of input materials, and sales markets, across national borders, as necessary. Of the range of different real options acknowledged by Botteron (2001), most are applicable to manage a company's operating risk.

Earlier empirical studies looking into the corporate management of operating risk have generally concluded that firms do not appear to comply with practices suggested in theory. Aabo (2001), for example, reported that at least some of the firms in his study had not reached a systematic risk management of their operating exposures. Similarly, Belk and Edelshain (1997) reported that while a small number of firms in their sample occasionally used operational measures, choice of these measures was generally limited and financial instruments, despite warnings from the theoretical literature, dominated the operating risk management programs.

The practices at ABC plc, the case company, as reported below provide a new insight into the management of operating risk. They may, in turn, serve to inform practices at other MNCs and also help explain the behavior reported in earlier empirical research (e.g., Belk & Edelshain, 1997).

ABC plc was selected as a suitable case based on "opportunity and convenience" (Jorgenson, 1989); the researcher had access to senior management and, more

importantly, the firm encountered extensive exchange-rate risk (below). At the selection stage, the researcher used annual reports and specialist trade press to determine the extent to which ABC plc was likely to suffer from exchange-rate risk and later verified this with the management at the firm. Data was collected through semi-structured interviews, internal company documents, and publicly available information. Interviews were held with the group treasurer, assistant treasurer, purchasing manager, pricing manager, and corporate planning manager.

## THE CASE: BACKGROUND

ABC plc is a U.K.-listed company that operates in the manufacturing industry (synonymous to the automotive industry) and sells differentiated, specialist products. The company operates in two markets, the United Kingdom (representing approximately 30% of sales) and the United States (representing approximately 70% of sales), and sells its products in these markets in U.K. sterling and U.S. dollar terms, respectively. The company has a manufacturing base in the United Kingdom and a long established sales subsidiary in the United States. Further, the company recently started up a purchasing unit in the United States, as explained below. The company faces extensive competition from firms in the

United States, Germany, and, to some degree, Japan.

ABC plc encounters and acknowledges all three forms of exchange risk. Translation risk, as traditionally defined, is, however, a relatively minor concern because the company has only a very small asset base overseas. Transaction and operating risks are more extensive. The company receives U.S. dollars for its sales in the United States and needs to convert them into U.K. sterling terms, the currency in which it incurs most of its costs and which is also the currency of the parent company.

More specifically, in the case of the firm's operating exposure, the U.S. dollar revenue base combined with a U.K. sterling cost base causes an extensive currency mismatch. This, in turn, means that a significant, long-term appreciation of the U.K. sterling (against the U.S. dollar) has the potential to erode away a notable proportion of the company's sterling cash flows (and, in turn, sterling market value).

The competitive element of operating risk discussed earlier is not a critical issue for ABC plc, despite its U.S., German, and Japanese competitors (in both the U.K. and the U.S. markets). The primary manner in which competitors pose an exchange-related threat to a company is

when they respond to favorable movements in exchange rates through product price reductions in an attempt to capture a part of the firm's market share. Operating in a specialist goods market, the pricing manager at the firm explained that, strategically, competitors are not in a position to lower product prices (because of favorable movements in exchange rates or otherwise) because of the negative effect that this strategy would have on the market position of the brands. Industry participants avoid product price cuts because these would hurt the upmarket image of the companies' products, which have been so consciously and carefully established. The pricing manager explained (and showed evidence) that favorable movements in the rates of exchange for the company itself, its German competitors, or its Japanese competitors are likely to be accrued in terms of higher profitability rather than as an attempt at higher market share. Sundaram and Mishra (1991) had discussed differences in the operating exchange exposures of firms who operated in differentiated goods markets to those who sold homogenous goods. Similarly, Aabo's (2001) research found a company that talked about a price-insensitive market in which product prices were determined by factors such as quality and appropriate distribution networks.

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*Overall, the competitive effects of operating risk are not an issue for ABC plc.*

Moffett and Karlsen (1994) and Lewent and Kearney (1990) had also discussed the role of product characteristics when assessing the operating exposure of a firm. Discussing the pharmaceutical industry, the authors explained that industry participants experience negligible competitive effects of operating risk since the industry is heavily regulated (price-controlled), with little scope for participants to dictate their own pricing policies.

Overall, the competitive effects of operating risk are not an issue for ABC plc. At the same time, however, it is critical to acknowledge that the firm is not in a position to pass along any adverse currency effects to customers as product price increases. The fierce competition from the U.S. and German firms disallows ABC plc to increase product prices due to fear of long-term market share loss. In conclusion, then, the U.S. dollar revenue-U.K. sterling cost mismatch defines the operating exposure at ABC plc. This currency mismatch also forms the basis of the firm's transaction risk, management of which, as discussed below, is subsumed in the management of the firm's operating risk. The next section reviews the historic risk management approach at ABC plc and is followed by an account of current practices.

## THE CASE: HISTORICAL PERSPECTIVE

The current risk management program at ABC plc was developed in the early 1990s. This followed a period of extensive exchange-related losses that resulted from a large sterling appreciation against the U.S. dollar during the mid- to late 1980s.

Up until the early 1990s, ABC plc had followed a relatively simple and what can be termed a traditional approach to currency risk management. The company had hedged forward its forecasted U.S. dollar-denominated cash inflows on a consistent, rolling basis for a period of up to 12 months ahead.

In the early 1980s, the U.K. sterling had devalued against the U.S. dollar, rating as low as £1.00/\$1.20 and had then strengthened to reach a value of almost £1.00/\$2.00 in the late 1980s. The company had gained a significant competitive advantage during the devaluation of the early 1980s, but saw this benefit vanish quickly when the U.K. sterling strengthened during the mid- to late 1980s. The company's 12-month-forward hedging strategy had protected its income (cash flows) in the initial period but soon the forward rates attained in the external markets were reflective of the appreciation of the ster-



ling and the company saw its profitability wane. Indeed, for the financial year 1987–1988, the company attributed a £200m (approximately 40%) reduction in its earnings to the revaluation of the sterling, and management decided to review its hedging program.

Following the review, management at ABC plc reached two key and interrelated conclusions. First, the 12-month cover had not provided it with adequate cover, and second, consistent with the theoretical literature (Soenen, 1991; Srinivasulu, 1981), the financial hedging strategy was, on its own, insufficient and needed to be supplemented with longer-term strategic measures. The account below introduces the renewed risk management program at ABC plc based on this philosophy and then details specific approaches used by the firm.

### THE CASE: A RENEWED RISK MANAGEMENT PROGRAM

The primary objective of the renewed risk management program at ABC plc is to reduce the level of volatility in cash flows as caused by movements in exchange rates because management believes that there is sufficient business risk within the firm (that arising from its

core activities) without attempting to increase its level of financial risk. Management will, however, capitalize upon favorable movements when the opportunity arises, as explained below. Overall, the risk management objective at ABC plc can be summarized as reducing cash flow volatility, with an emphasis on reducing the downside risk while capturing potential upside gains.

The management process is based on a five-year cycle since this has, until recently, been the effective limit on hedging contracts in financial markets, but, more importantly, because it aligns neatly with the company's business planning cycle. Given the long-term nature of the company's products, management produces a detailed five-year quantitative plan as part of its strategic planning process. Thereafter, it takes a "snap shot"<sup>2</sup> view of the next five years. In his research, Aabo (2001) also found that the type of businesses that firms operated in closely shaped their risk management time horizons.

The new program comprises an operational strategy, a strategy based on the currency denomination of its debt portfolio, and a financial instrument-based

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<sup>2</sup> A less detailed, though quantified, view of strategic plans beyond five years.

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strategy. While the three strategies are interrelated and integrated, they are discussed separately in this article for the ease of discussion.

### **THE CASE: OPERATIONAL HEDGING STRATEGY**

ABC plc's operational strategy is centered on adjusting the currency mismatch of its U.S. dollar revenue base and U.K. sterling cost base. It relies primarily on sourcing adjustments. In broad terms, when the U.K. sterling is at a high, the company uses U.S. suppliers in an attempt to match the smaller sterling revenues with lower sterling costs. On the other hand, when the sterling is at a low, management seeks to capitalize on the favorable market conditions and uses local suppliers to minimize costs, while generating high sterling revenues.

While the dollar sourcing strategy is currently pursued for a large portion of the company's input factors, a significant portion of the costs remains U.K. sterling-based. Labor costs, for example, are sterling-based. Certain componentry, the purchasing manager explained, is also sterling-based. This is because the company pursues long-term relationships with the suppliers of these components for reasons such as joint innovations (where the two

work together on research and development) and technological dependence. Here there is little opportunity for ABC plc to switch to U.S. suppliers in the short- to medium-term period, and on a more long-term basis, such close working relationships, the purchasing director explained, are not feasible across borders.

Up until the 1990s, when the renewed risk management program was introduced, ABC plc had relied purely on local suppliers. When the review of the risk management strategy had highlighted the need for operational measures, ABC plc considered and exercised the option (a real option) to set up a small purchasing team in the United States. This real option, managed from headquarters, was valued highly because it entailed a relatively low set-up cost and, more importantly, it introduced a new level of flexibility into the company, which enabled it to switch between U.K. and U.S. suppliers. The company took a series of steps to fully operationalize the option and optimize its value.

First, to implement the U.S. dollar sourcing strategy at the purchasing level, the treasury department worked closely with the purchasing unit at the head office, ensuring that managers here fully understood the risks of currency trading, the need to

source from real U.S. dollar cost bases, and their involvement in the process. The concept of operating risk management was taken extremely seriously by the company and it later became one of the aspects of the eight-point global sourcing policy at the company. This sourcing policy delineated the various issues that a purchaser needed to consider before reaching a purchasing decision, and while these included elements such as product specification, product quality, etc., operating risk management also became a consideration.

At the initial stage, one key issue that the firm faced was that a U.S. dollar-based sourcing strategy, although simple in concept, had been difficult to implement in practice. The group treasurer here explained that "it was easy for a U.S. dollar sourcing strategy to be misinterpreted and turned into a general call for dollar prices irrespective of the suppliers' natural cost base." In other words, purchasers viewed attaining U.S. dollar *invoicing* as pursuing the U.S. dollar sourcing strategy. Thus, at first, purchasers focused on British suppliers who agreed to price in U.S. dollars. What the firm found in this instance, however, was that these suppliers charged quite high prices, sometimes even higher than the equivalent U.K. sterling price because they sought to protect themselves from any adverse U.K. ster-

ling-U.S. dollar exchange rate movement. They were obviously concerned with this rate of exchange because, being British companies, they incurred sterling costs and sought to maximize sterling profits, while pricing in U.S. dollars. Lhabitant and Tinguely (2001) had noted the issue of the currency of invoicing when considering operating risk. Though their discussion centered on assessing operating risk, the same principles apply when seeking to manage it.

To resolve the issue, the treasury department took two measures. First, it educated the purchasing team, emphasising the role of U.S.-based suppliers who were concerned with U.S. dollar-based costs and profits and were therefore unlikely to react to movements in the U.S. dollar-U.K. sterling rate. Second, the company introduced what it termed a *dual payment policy*. This policy sought to resolve the problem of misinterpreting U.S. dollar invoicing as U.S. dollar sourcing. Here management pays suppliers with U.S. dollar cost bases, in U.S. dollars, and suppliers with British cost bases in U.K. sterling. With only the U.S. dollar cost bases being paid for in U.S. dollars, the currency of invoicing essentially becomes the currency of sourcing. The dual payment policy has also been extended to suppliers who have

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a mixed cost base—a U.K. sterling and a U.S. dollar cost base.

As mentioned above, ABC plc is closely connected to some British suppliers for some of its componentry. The company has cascaded the philosophy of dollar purchasing to this supplier community. Thus, the company actively encourages its suppliers to source from the United States when it is in its interests to do so. The dual payment policy mentioned above is used in these instances: the company uses a split payment system, paying for all natural U.S. dollar costs incurred by the supplier in U.S. dollars, and for the remainder in sterling terms, the suppliers' base currency. This payment policy ensures that ABC plc's operating risk is managed for, and suppliers do not take onto themselves any form of exchange-rate risk.

A further issue to note at ABC plc is that approximately 30% of the company's purchases can be sourced internally. While some of these "internal" components comprise those that are "fixed"<sup>3</sup> in sterling terms, others can be sourced externally. With regards to the dollar sourcing strategy, these components are treated in the same manner as those pur-

chased externally. Thus, when the sterling increases in value and opportunities to source from the resulting lower dollar bases materialize, ABC plc capitalizes upon them. This situation is typical of a make/buy decision in management accounting; in this case, sourcing from the United States is compared to manufacturing in the United Kingdom. Finance personnel with dual reporting responsibilities to the purchasing and finance directors are responsible for reaching such decisions, taking into consideration the various issues such as opportunity costs, sunk costs, etc.

The new purchasing strategy at ABC plc has also meant that the purchasing community no longer restricts itself to the U.S. for U.S. dollar sourcing, rather it has become more global, sourcing from countries such as Mexico and South Korea whose currencies are tied strongly to the U.S. dollar. The company in this instance has experienced a significant advantage of cheaper labor and overhead costs in these countries. Component prices here are on occasion cheaper than those in the United Kingdom, even when the U.K. sterling is as low as \$1.20/£1.00, when imports would usually become very expensive.

While the company lacks a formal performance evaluation system to motivate its purchasing

<sup>3</sup> Fixed costs in sterling or U.S. dollar terms, in this case, refer to elements of the cost structure that cannot be changed to U.S. dollar or sterling terms respectively. An example is labor costs that are sterling-based, given a British manufacturing site. They are not necessarily fixed in the way the term *fixed costs* is used in management accounting.

departments to seek foreign suppliers to manage its operating exchange risk,<sup>4</sup> it has in place two measures that encourage the purchasing community to look at exchange rates as an issue when reaching purchasing decisions. First, the eight-point purchasing strategy that the company uses highlights the involvement of the purchasing department in the management of operating risk. Second, a liaison officer between the purchasing and finance departments monitors actions of the purchasing managers to ensure that they actively search for and negotiate with foreign, U.S.-based suppliers, particularly when the sterling is strong. The liaison officer in turn reports the purchasing departments' progress to the finance department.

Overall, while the company's risk management program currently focuses on purchasing adjustments (and the currency denomination of debt—see below), management is aware that if the U.K. sterling were to reach an all-time high against the U.S. dollar over a long period, its current strategies may be insufficient to increase the proportion of U.S. dollar costs in its overall cost structure to an appropriate level. Here the firm realizes that

<sup>4</sup> Such a system is not plausible because the company does not set out specific exchange-related objectives for the purchasing community against which it can be measured.

it will need to take more drastic measures such as a relocation of its manufacturing base, with which costs currently fixed in sterling terms (e.g., labor) will be switched to U.S. dollar terms. Another measure that the company has considered is the option to establish new sales sites. This will not only introduce the flexibility to switch between markets, it will also introduce an element of diversification in which a high Euro (against the U.K. sterling), for example, may compensate for a low U.S. dollar.

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### THE CASE: CURRENCY DENOMINATION OF DEBT

As explained in the previous section, ABC plc endeavors to increase the component of U.S. dollars in its cost structure to protect its profitability when the U.K. sterling is at a high. Together with its purchasing strategy, management uses the currency denomination of its debt for this purpose. It seeks U.S. dollar-denominated debt since the interest and principal repayments on these will be made in U.S. dollars. While financial in nature, this strategy rests on the same principles as those of the company's purchasing strategy.

The currency denomination of debt is not as flexible a policy as that for purchasing adjustments, because it is not possible to alternate between U.S. dollar



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debt and U.K. sterling debt readily, and thus a certain proportion is maintained in U.S. dollar terms. This situation is becoming less intense as firms can increasingly rely on the currency swaps market. When a medium- to long-term U.K. sterling appreciation or depreciation materializes, ABC plc will swap (some of) its U.K. sterling debt for U.S. dollar debt, or vice versa, provided that it is confident in the direction of currency movements. The company has made a conscious decision to overlook shorter-term sterling depreciation, as it does not believe that it can do anything meaningful over this period and will forgo any potential gains. At the same time, the sterling appreciations are generally covered by a fixed level of U.S. dollar debt.

While translation risk (translation gains and losses as reported in annual accounts) is not of concern to ABC plc, the translation process had caused it concern when it first introduced the U.S. dollar-denominated debt within its debt portfolio. The company had traditionally relied on the gearing ratio for funding arrangements, but with the debt denominated in U.S. dollars, the translation process had had the potential to alter the value of this ratio considerably in the light of the translation standard operational in the United Kingdom (SSAP 20). When the U.K.

sterling was at a low as compared to the U.S. dollar, for example, the gearing ratio was adversely affected because the value of debt in sterling terms increased. This, in turn, had implications for the breach of contract for the loan covenants at ABC plc. In their research of U.K. companies' exchange risk, Walsh (1986) and Davis, Coates, Collier, and Longden (1991) also reported that several firms were concerned with the adverse effects of the translation process on their balance sheet ratios, particularly the gearing ratio.

To resolve this issue at ABC plc, management shifted attention from the traditional gearing ratio to the interest coverage ratio as a basis for its funding arrangements. Together with being suitable as a basis for funding arrangements, the interest coverage ratio is not adversely affected by the translation process when the firm uses U.S. dollar debt to manage its operating risk. Both the company's revenues and interest charges are, in this case, translated from U.S. dollars into U.K. sterling at the same rate of exchange. So the translation process does not alter the actual value of the ratio. This, in turn, means that the currency denomination of debt is not aligned to avoid the translationary effect on the firm's gearing ratio and is therefore available to manage its operating exposure.

## THE CASE: FINANCIAL HEDGING STRATEGY

The current financial instrument-based hedging strategy at ABC plc was developed in the early 1990s when the firm's entire risk management program was reviewed. The company began with a cost-volume-profit (CVP) analysis, familiar to management accountants. It sought to establish a "break-even exchange rate" for the firm in light of its profit objectives. Management decided that if it could attain this rate in the external hedging markets, it would be in a position to achieve its financial objectives without the interference of exchange-rate movements.

The break-even exchange rate, calculated during the review process, used the following equation:

$$U.S. \text{ rev}(\$/\text{£ ex.r.}) + U.K. \text{ rev} - [(\$ \text{ v.c.}) (\$/\text{£ ex.r.}) + (\text{£ v.c.}) + \text{£ f.c.}] = \text{£}\Pi$$

where, *U.S. rev* and *U.K. rev* refer to revenues generated in the U.S. and the U.K. markets, respectively; *\$/£ ex.r.* is the break-even exchange rate to be determined; *\$ v.c.* and *£ v.c.* are the U.S. dollar and U.K. sterling variable costs, respectively; *£ f.c.* are the sterling fixed costs; and *£Π* is the profit objective of the company in U.K. sterling terms. The terms *fixed costs* and

*variable costs* are not used in the same capacity as traditional management accounting. Rather, fixed sterling costs refer to elements of the cost structure that cannot be changed to another currency (such as labor costs, which will always be in sterling terms because of the U.K. manufacturing base). Variable costs, on the other hand, quoted in U.S. dollar terms or U.K. sterling terms, are those for which the company can switch between U.K. and U.S. (or other) suppliers.

Even though the financial information for the variables in the equation may change on a year-to-year basis, generally, changes occurring on the left-hand side should be reflected on the right-hand side. Cost reduction strategies and increases in levels of sales volume, for example, should both be reflected as improvements in the profitability of the firm. Consequently, the break-even rate was not expected to alter significantly over the course of time, provided that the U.S. dollar-U.K. sterling mix in the equation remained constant. Financial information required for the variables in the equation above was derived from two sources: the company's sales and sourcing strategies in the few years prior to the review and its future strategic plan at the time, which was quantified for a five-year period.

*The terms fixed costs and variable costs are not used in the same capacity as traditional management accounting.*

*In terms of its financial hedging strategy, ABC plc uses the break-even exchange rate as a guide for future external hedges.*

When the company first determined its break-even exchange rate, it realized that this rate should be one attainable in the external markets over the long-run period, the period for which the company intends to manage its risk. The group treasurer explained this situation as one in which the company did not want to be profitable just within a small range of exchange rates, which were far from what the real rate, in economic terms, was supposed to be. The company looked to the purchasing power parity (PPP) for the prediction of the long-term rate in its capacity as the sound economic theory over long-term periods. On consultation with various banks, however, management realized that there were large discrepancies in what the long-term rate was actually predicted at. At this stage, the company made a conscious decision to consider a wider range of rates. It was particularly concerned about the upper limit of the sterling (i.e., a strong sterling) since this situation represented one in which corporate profits could erode significantly. Here management realized (and acted on) the notion that it could alter the U.S. dollar-U.K. sterling cost base of the firm and draw the break-even exchange rate towards a sterling appreciation. This, in turn, gave birth to the company's previously described operational and currency denomination of debt strategies.

In terms of its financial hedging strategy, ABC plc uses the break-even exchange rate as a guide for future external hedges. It has increased its period of hedge cover from the original 12 months to a period of up to five years. Forward contracts form the basis of the firm's hedging strategy because these instruments are relatively cheap, extend to long periods of time, and can be tailored to the company's specifications.

The company justifies its five-year hedging strategy on the grounds that it has detailed quantitative information about its future plans for this time period. On occasion, the treasury group transacts hedges *beyond* five years, but this tends to be on an opportunistic basis where the market rates available are clearly favorable (i.e., better than the break-even rate). Less-detailed quantitative plans form the basis for these transactions. Even if plans do not materialize as expected, the company believes it is unlikely to lose out from an overhedge because it can roll forward the hedges farther into the future. At the same time, such a long period of cover allows it to refrain from hedges when the exchange rates in the markets are particularly unfavorable. Where the company is covered for the next annual year, the rate attained in the hedge markets becomes the budget rate for that year.

ABC plc is clearly aware that it may end up locking itself in at a rate that turns out to be less favorable than the actual spot rate at the time. The company is comfortable with this position, since it has guaranteed itself its target profit at the hedge rate and looks at the more favorable rate foregone as an opportunity loss. Its aim is ultimately to ensure that it takes out any negative consequences of a sterling appreciation on the overall levels of reported income. From a more positive perspective, the treasurer explained that the company could perhaps benefit from the favorable spot rate by using it as the basis for future hedges in which the forward rates will reflect the beneficial rate. As mentioned earlier, it may also transact hedges beyond its five-year norm to take advantage of a superior rate.

The company's management of operating exchange risk, it should be noted here, subsumes its management of transaction risk. Both of these risks are a result of the U.K. sterling-U.S. dollar exchange rate. The company uses either financial instruments or operational measures to shield its expected future cash flows from movements in this exchange rate. When these materialize as actual foreign cash flows and, in turn, as transaction risk, they are already hedged for by the firm's holistic, longer-term management strategy.

## THE CASE: SYNTHESIS

The financial risk management approach at ABC plc is based on its objective to reduce its cash flow variability to movements in exchange rates, though, the company does, when the opportunity arises, capitalize on favorable exchange-rate movements. In light of its British origins and consequently high U.K. sterling costs, ABC plc is in the position to generate higher profits when the sterling levels are at a low.<sup>5</sup> The company's emphasis is therefore on its need to protect itself from high sterling levels.

ABC plc's risk management strategy is based on a combination of three different approaches, as described above. The overall strategy pursued can be described as what Meulbroeck (2002 termed *integrated* risk management. First, it is based on a combination of approaches. Second, it is strategic in nature in that it assesses the effect of exchange-rate fluctuations on the value of the entire firm, and uses real options to manage its risk. And third, based on the real options notion, the exchange-risk management strategy is subsumed within the firm's entire risk management frame-

*The financial risk management approach at ABC plc is based on its objective to reduce its cash flow variability to movements in exchange rates . . .*

<sup>5</sup> Even now, after introducing a U.S. dollar-based purchasing strategy and U.S. dollar-based debt, a significant portion of ABC plc's costs are "fixed" in sterling terms, because of the British manufacturing site, long-term relationships with a significant portion of British suppliers, etc. The resulting U.K. sterling cost-U.S. dollar revenue mismatch still means that ABC is quite profitable at relatively low rates of sterling.

*... when the sterling is at a low, ABC plc will revert to local suppliers, and the level of hedging for U.S. dollar inflows will increase.*

work. Here, for example, with reference to components based on long-term relationships with suppliers, there was a conflict of interest between seeking U.S.-based suppliers to manage the firm's exchange risk and maintaining the long-term relationships with British suppliers for reasons of technological dependence and competitive advantage. The company here clearly reached a decision about which risk to retain and which to manage.

Finally, with reference to the three risk approaches adopted by the firm, while each is distinctive in its own right, they are also all closely connected. In the former case, the currency denomination of debt fixes costs in U.S. dollar terms for medium-term periods; the purchasing strategy, based on real options, allows considerably more flexibility between U.S. dollar-based costs and U.K. sterling-based costs; and finally, the financial hedging strategy seeks to cover unmatched dollar inflows in the external markets at rates within a range deemed "acceptable" by the firm. In terms of the connection between the approaches, when the hedge rates that the company can attain indicate a high sterling level, purchases of U.S. dollar-based materials will increase, as they will become cheaper in home currency terms. This, in turn, means that the level of cover required in the hedge markets will fall, since there will be a

higher level of natural hedging. Conversely, when the sterling is at a low, ABC plc will revert to local suppliers, and the level of hedging for U.S. dollar inflows will increase. Consequently, when the treasury department intends to attain cover in the external hedge markets, it communicates with the purchasing team to determine the levels of foreign purchase and, in turn, the levels of unmatched cash flows, which need to be covered. Of course, there are occasions when purchasing strategies may differ from that anticipated and the level of cover either exceeds the actual cash flows or falls short of it. Here the treasury rolls the hedges farther into the future, brings them forward, and/or use, spot markets, as appropriate.

### THE CASE: IMPLICATIONS

The account above about the operational risk management practices of ABC plc serves several purposes. First, alongside prior studies (Aabo, 2001; Moffett & Karlsen, 1994), it serves to reveal a new pattern of operating exchange risk, in which firms with particular types of products (differentiated, specialist products, or price-regulated products) may not experience the competitive effects of operating risk. Indeed, Marshall (2000) reported in his survey that a notable portion of respon-



dents believed that their firms did not experience a significant impact of operating risk. The diversity in the level and type of operating exchange risk may in turn explain the diversity in risk management practices previously observed.

Second, the case may help explain the results of prior empirical research. Belk and Edelsbain (1997) reported that MNCs in the U.K. failed to use the variety of operational measures described in the literature to manage their operational risk and instead concentrated on long-term use of financial instruments. Here at ABC plc, the firm's hedging strategy continues to play a significant role in its overall risk management program, even though this may appear to be incongruous with the theoretical literature. Similarly, Lewent and Kearney (1990) looked into the practices of Merck plc, a pharmaceutical company, and reported that the financial options dominated the company's exchange risk management program. Both sets of companies, it must be noted, do not suffer from direct competitive operating risk and are consequently unconcerned with the negative effects of financial instrument based strategies described earlier. Overall, results here support the view by Sundaram and Mishra (1991) that the nature of the business that a firm is

involved with determines the type of operating exchange rate risk it experiences, which, in turn, determines the appropriate risk management strategy.

The financial hedging strategies at ABC plc (and Merck plc), it must be noted, face a new challenge. The reporting requirements of FRS 13, a new accounting standard for accounting for derivatives in the United Kingdom, may deter the firm from using such long-term hedges since it will be required to disclose the market value of its derivatives in its annual financial statements. In the past, financial derivatives at ABC plc were treated as off-balance sheet instruments—management just needed to satisfy its auditors that these financial derivatives were used for hedging purposes only. While the accounting standards bodies in the United Kingdom, the United States, and the international arena have introduced (or are in the process of introducing) accounting standards for derivatives activities to protect investors from speculative activities, there is the possibility that such reporting requirements may curb the management of financial risks at firms. Further research into the impact of the accounting standards on corporate practices will be insightful.

In terms of operational measures, consistent with Belk and Edelsbain's (1997) results,

*In the past, financial derivatives at ABC plc were treated as off-balance sheet instruments . . .*

*ABC plc, in response to large exchange-based losses, reworked its entire risk management program.*

ABC plc relies primarily on one type of measure—purchasing adjustments (though it is aware of others). Management is content (at this point in time) that this strategy suffices. Perhaps it is important to acknowledge here that some firms may not have access to some of the operational measures prescribed because of the nature of the businesses that they operate in. Further, even if such opportunities occur theoretically, they may be difficult to implement in practice. As seen in the case of ABC plc, the company was unable to introduce flexibility into all purchasing decisions because a significant portion involved close long-term relationships with British suppliers for reasons of technological dependence and competitive advantage. A significant number of respondents in Marshall's (2000) survey reported that there were no effective tools for them to manage their operating risk, and, in instances where they were available, the costs often outweighed the benefits.

Third, in the event that there are some firms who have not considered the implications of their operating risks, practices at ABC plc may serve to inform developments at these firms. ABC plc, in response to large exchange-based losses, reworked its entire risk management program. In particular, given its circumstances, management used a real

option to introduce flexibility into its sourcing decisions. In turn, to operationalize and optimize this option, the company has undertaken a series of diverse measures. These include establishing a close working relationship between the treasury and the purchasing department, encouraging and monitoring a purchasing policy that takes consideration of operating risk, and setting up a dual payment policy to address issues raised by the latter. Further, the company cascaded the U.S. dollar sourcing strategy to its British supplier community, with whom it is closely connected, and extended the strategy to components that can be manufactured within ABC plc and to countries other than the United States whose currencies are closely tied to the U.S. dollar.

Finally, the company's approach to the currency denomination of debt is also innovative. It denominates a portion of its debt in U.S. dollars to manage its operating risk, and, in turn, its transaction risk. When the company first introduced this approach, it became aware of the potential adverse effects that this strategy could have on its gearing ratio. The translation process operational in the United Kingdom would increase the level of debt as quoted in U.K. sterling terms if the U.K. sterling was at a low at the balance sheet date. The company overcame this

issue by changing focus from the gearing ratio as a basis for its funding arrangements to the interest coverage ratio.

Prior studies into the relevance of translation exchange risk suggest that MNCs in the United Kingdom and the United States are concerned more with the impact of the translation process on the balance sheets of the parent companies because of its impact on the gearing ratios of firms (Davis et al., 1991; Walsh, 1986). Companies protect this ratio by aligning the currency of their debt with that of their assets. What this has meant from the cash flow perspective is that firms no longer have access to the currency of debt to manage their real exchange, transaction, and operating exchange risks. To resolve this issue, companies can, like ABC plc, shift their attention to the interest coverage ratio. This ratio, not affected by the translation process, will "free up" the currency denomination of debt to manage the firms' real cash flow exposures.

## CONCLUSIONS

This article looked into the management of exchange risk, particularly operating exchange risk, at a British firm, ABC plc. The practice at the company is unique in that it comprises a successful long-term financial

instrument-led strategy coupled with a currency denomination of debt- and purchasing-based strategy. Despite inconsistency with the theoretical literature, usefulness of the former strategy can be attributed, in part, to the particular *type* of operating exchange risk experienced by ABC plc, in which it does not suffer from direct competitive operating risk. While use of this strategy may be restricted to firms with characteristics similar to those of ABC plc, that of the currency denomination of debt and purchasing adjustments, based on real options theory, has important implications for firms, in general. Consequences of the new hedge accounting standard in the United Kingdom on the financial instrument-based strategy have yet to be determined. ●

## REFERENCES

- Aabo, T. (2001). Exchange rate exposures and strategies of industrial companies: An empirical study. *Thunderbird International Business Review*, 43, 379-395.
- Belk, P., & Edelshain, D. (1997). Foreign exchange risk management—The paradox. *Managerial Finance*, 23(7), 5-24.
- Belk, P., & Glaum, M. (1990). The management of foreign exchange risk in UK multinationals: An empirical investigation. *Accounting and Business Research*, 21, 3-13.
- Botteron, P. (2001). On the practical application of the real options theory. *Thunderbird International Business Review*, 43, 469-479.
- Capel, J. (1997). A real options approach to economic exposure management. *Journal of International Financial Management and Accounting*, 8, 87-113.
- Davis, E., Coates, J., Collier, P., & Longden, S. (1991). *Currency risk management in MNCs*. Englewood Cliffs, NJ: Prentice Hall.

- Dufey, G. (1972). Corporate finance and exchange rate variations. *Financial Management*, 1, 51-57.
- Froot, K., Scharfstein, D., & Stein, J. (1993). Risk management: Co-ordinating corporate investment and financial policies. *Journal of Finance*, 48, 1629-1658.
- Glaum, M. (2002). The determinants of selective exchange risk management—Evidence from German corporations. *Journal of Applied Corporate Finance*, 14(4), 108-121.
- Jorgenson, D. (1989). Participant observation. Newbury Park, CA: Sage.
- Lessard, D. (1989). Corporate finance in the 1990s—Implications of a changing competitive and financial context. *Journal of International Financial Management and Accounting*, 1(3), 209-231.
- Lewent, J., & Kearney, A. (1990). Identifying, measuring, and hedging currency risk at Merck. *Journal of Applied Corporate Finance*, 2(4), 19-28.
- Lhabitant, F., & Tinguely, O. (2001). Financial risk management: An introduction. *Thunderbird International Business Review*, 43, 343-364.
- Marshall, A. (2000). Foreign exchange risk management in UK, USA and Asia Pacific multinational companies. *Journal of Multinational Financial Management*, 10, 185-211.
- Meulbroeck, L. K. (2002). A senior manager's guide to integrated risk management. *Journal of Applied Corporate Finance*, 14(4), 56-70.
- Miller, K., & Reuer, J. (1998). Firm strategy and economic exposure to foreign exchange rate movements. *Journal of International Business Studies*, 29, 493-514.
- Moffett, M., & Karlsen, J. (1994). Managing foreign exchange economic exposure. *Journal of International Financial Management and Accounting*, 5, 158-175.
- Soenen, L. (1991). When foreign exchange hedging doesn't help. *Journal of Cash Management*, 11(6), 58-62.
- Soenen, L. & Madura, J. (1991). Foreign exchange management—A strategic approach. *Long Range Planning*, 24(5), 119-124.
- Srinivasula, S. (1981). Strategic response to foreign exchange risks. *Columbia Journal of World Business*, 16, 13-23.
- Sundaram, A., & Mishra, V. (1991). Currency movements and corporate pricing strategy. In Khoury, S. (Ed.), *Recent developments in international banking*, 4/5 (pp. 203-241). Amsterdam: Elsevier.
- Walsh, E. (1986). Foreign exchange risk management in UK MNCs, Unpublished doctoral dissertation, University of Glasgow.
- Werner, S., Brouthers, L., & Brouthers, K. (1996). International risk and perceived environmental uncertainty: The dimensionality and internal consistency of Miller's measure. *Journal of International Business Studies*, 27, 571-592.