International Indexed & Referred Research Journal, April, 2012. ISSN- 0975-3486, RNI-RAJBIL 2009/30097;VoL.III *ISSUE-31

Research Paper—Marketing Management

Treasury and Foreign Exchange Rate Risk Management

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April, 2012

A B S T R A C T

Measuring and managing exchange rate risk exposure is important for reducing a firm's vulnerabilities from major exchange rate movements, which could adversely affect profit margins and the value of assets. This paper reviews the traditional types of exchange rate risk faced by firms, namely transaction, translation and economic risks, presents the VaR approach as the currently predominant method of measuring a firm's exchange rate risk exposure, and examines the main advantages and disadvantages of various exchange rate risk management strategies, including tactical vs. strategically and passive vs. active hedging. In addition, it outlines a set of widely-accepted best practices in managing currency risk and presents some of the main hedging instruments in the OTC and exchange-traded markets. The paper also provides some data on the use of financial derivatives instruments, and hedging practices by firms.

Introduction

Exchange rate risk management is an integral part of every firm's decisions about foreign currency exposure. Currency risk hedging strategies entail eliminating or reducing this risk, and require understanding of both the ways that the exchange rate risk could affect the operations of economic agents and techniques to deal with the consequent risk implications. Selecting the appropriate hedging strategy is often a daunting task due to the complexities involved in measuring accurately current risk exposure and deciding on the appropriate degree of risk exposure that ought to be covered. The need for currency risk management started to arise after the breakdown of the Bretton Woods system and the end of the US dollar peg to gold in 1973 (Papaioannou, 2001).

Types of exchange rate risk

Multinational firms are participants in currency markets by virtue of their international ransactions. To measure the impact of exchange rate movements on a firm that is involved in foreign currency denominated operations, i.e., the implied valueat-risk (VaR) from exchange rate moves, we need to identify the type of risks that the firm is exposed to and the amount of risk encountered (Hakala and Wystup, 2002).The three main types of exchange rate risk that we consider in this paper are (Shapiro, 1996; Madura, 1989):

1.Transaction risk, which is basically cash flow risk and deals with the effect of exchange rate moves on transactional account exposure related to receivables (export contracts), payables (import contracts) or repatriation of dividends. An exchange rate change in the currency of denomination of any such contract will result in a direct transaction exchange rate risk to the firm;

2. Translation risk, which is basically balance sheet exchange rate risk and relates exchange rate moves to the valuation of a foreign subsidiary and, in turn, to the consolidation of a foreign subsidiary to the parent company's balance sheet. Translation risk for a foreign subsidiary is usually measured by the exposure of net assets (assets less liabilities) to potential exchange rate moves. In consolidating financial statements, the translation could be done either at the end-of-the-period exchange rate or at the average exchange rate of the period, depending on the accounting regulations affecting the parent company.

3. Economic risk, which reflects basically the risk to the firm's present value of future operating cash flows from exchange rate movements. In essence, economic risk concerns the effect of exchange rate changes on revenues (domestic sales and exports) and operating expenses (cost of domestic inputs and imports).

Measurement of exchange rate risk

After defining the types of exchange rate risk that a firm is exposed to, a crucial aspect of a firm's exchange rate risk management decisions is the measurement of these risks. Measuring currency risk may prove difficult, at least with regards to translation and economic risk (Van Deventer, Imai, and Mesler, 2004; Holton, 2003). At present, a widely-used method is the value-at-risk (VaR) model. Broadly, value at risk is defined as the maximum loss for a given exposure over a given time horizon with z% confidence. The VaR methodology can be used to measure a variety of types of risk, helping firms in their risk management. However, the VaR does not define what happens to the exposure for the (100 - z) % point of confidence, i.e., the worst case scenario. Since the VaR model does not define the maximum loss with 100% confidence, firms often set operational limits, such as nominal amounts

or stop loss orders, in addition to VaR limits, to reach the highest possible coverage (Papaioannou and Gatzonas,2002).

1 Hedging strategies

Indicatively, transaction risk is often hedged tactically (selectively) or strategically to preserve cash flows and earnings, depending on the firm's treasury view on the future movements of the currencies involved. Tactical hedging is used by most firms to hedge their transaction currency risk relating to short-term receivable and payable transactions, while strategic hedging is used for longer-period transactions. However, some firms decide to use passive hedging, which involves the maintenance of the same hedging structure and execution over regular hedging periods, irrespective of currency expectations - that is, it does not require that a firm takes a currency view.

Hedging benchmarks and performance

Hedging performance can be measured as a distance to a given benchmark rate (Jacque, 1996). The risk embedded in the hedge is usually expressed as a VaR number that will be consistent with the performance measure. Hedging optimization models, as methods for optimizing hedging strategies for currency-denominated cash flows,help find the most efficient hedge for individual currency exposures, while most of them do not provide a hedging process for multiple currency hedging. Thus, both performance and VaR are measured as effective hedge rates, calculated for each hedging instrument used and the risk in terms of a confidence level.

Hedging and budget rates

Budget exchange rates provide firms with a reference exchange rate level (Madura,1989). Setting budget exchange rates is often linked to the firm's sensitivities and benchmarking priorities. After deciding on the budget rate, the corporate treasury will have to secure an appropriate hedge rate and ensure that there is minimal deviation from that hedge rate. This process will determine the frequency and instruments to be used in hedging. It should be further pointed out that persistent moves relative to the numerary (functional) currency should be reflected in the budget rates, or strategic positioning and hedging should be considered.

Best practices for exchange rate risk management

For their currency risk management decisions, firms with significant exchange rate exposure often need to establish an operational framework of best practices (Allen, 2003; Jacque, 1996). These practices or principles may include:

1. Identification of the types of exchange rate risk that a firm is exposed to and measurement of the associated risk exposure. As mentioned before, this involves determination of the transaction, translation and economic risks, along with specific reference to the currencies that are related to each type of currency risk. In addition, measuring these currency risks - using various models (e.g. VaR) - is another critical element in identifying hedging positions.

Concluding remarks

Measuring and managing currency risk exposure are important functions in reducing a firm's vulnerabilities from major exchange rate movements. These vulnerabilities mainly arise from a firm's involvement in international operations and investments, where exchange rate changes could affect profit margins, through their effect on sources for inputs, markets for outputs and debt, and the value of assets. Prudent management of currency risk has been increasingly mandated by corporate boards, especially after the currency-crisis episodes of the last decade and the consequent heightened international attention to accounting and balance sheet risks.

In managing currency risk, multinational firms utilize different hedging strategies depending on the specific type of currency risk. These strategies have become increasingly complicated as they try to address simultaneously transaction, translation and economic risks.