

## Foreign Exchange Exposure: An Overview

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### Abstract

Foreign exchange exposure represents a material risk for multinational corporations which are unrelated to business operations. One needs to identify each foreign exchange exposure, the risk it represents and methods and costs available to limit such exposure. This paper discusses the three major types of foreign exchange exposure: translation, transaction and economic: the available economic and financial available resources to limit and/or eliminate such exposure and the cost, if any, associated with each strategy. With global business on the rise, foreign exchange exposure must be addresses and its impact on worldwide economies will continue to increase.

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**JEL Classifications Codes:** F31, O24, M40 and M50.

### Introduction

Foreign exchange exposure is a measure of the ability of a firm's profitability, net cash flow, and the market value to change as a result of a change in exchange rates. An important duty of the financial manager is to measure the effect of foreign exchange exposure and manage it in such a way as to maximize the profitability, net cash flow and market value of the firm. When foreign exchange rates change, the effects on a firm can be measured in several days.

Three main types of foreign exchange exposure are translation, transaction, and economic exposure. Translation exposure measures potential accounting changes in a firm's consolidated financial statements that result from a change in foreign exchange rates. Transaction exposure measures the change in the value of the firm's outstanding obligations which are incurred prior to the change in foreign exchange rates but not expected to be settled until after the exchange rates change. Economic exposure measures the change in expected cash flows as a result of unexpected changes in foreign exchange rates.

This paper will illustrate some background information on the three major forms of foreign exchange exposure. The available resources to handle each exposure will be examined in detail.

## **Translation Exposure**

Translation Exposure, otherwise known as Accounting Exposure, stems from the need to report consolidated worldwide operations according to the predetermined rules. The translation follows rules set up by an accounting association such as GAAP, the parent firm's government, or by the board of the firm itself. The revenues, expenses, assets and liabilities that have already been calculated in a foreign currency, must now be restated in terms of the home currency in order to be consolidated with home currency accounts. A practical example of the translation exposure would be the loss in dollars for a bank balance of one million yen held in Japanese bank for a U.S. company. If one yen was originally worth two dollars then the bank balance would be reported on the U.S. parent company's books at a dollar value of two million dollars ( $2 \times 1,000,000 = 2,000,000$ ). However if the yen would later drop in value to one dollar, the U.S. parent company would then report the bank balance as worth one million dollars on its books, leaving a loss of one million dollars. This loss as governed by various accounting rules might be written off directly against the stockholders equity in the form of a reserve account (they keep all gains and losses for such situations so that the reserve can be available to offset losses). The loss may even be reported in the parent company's Income Statements as a deduction from Net Income.

There are many translation methods that have been developed by the accounting profession in translating foreign currency into the currency of the parent (reporting) company. However the three that have been commonly used are the current rate method, monetary/nonmonetary method or temporary method, and current-noncurrent method.

The Current Rate method has been the most prevalent method used throughout this world. It is practiced by most of the Europe, in Latin America, the Far East Africa, and the United States. Although its applications may differ among multinational firms, as defined by FAS # 52 for the United States, asset and liabilities are to be translated at the current rate of exchange or the balance sheet date. cost of goods sold, depreciation and all other income statement items are translated at either an approximately weighted average exchange rate for the period or the actual exchange rate on the dates the various gains, losses, revenues, and expenses are incurred. All existing equity accounts, such as paid-in-capital and common stock are translated at historical rates.

It is important to realize that the gains and losses caused by translation adjustments are not included in the calculation of Net Income. Instead they are reported and accumulated separately in a Cumulative Translation Agreement (CTA) account. If the foreign associate which is accumulated those gain/losses is later sold or liquidated, the CTA account will be closed out and the net balance will be reported as part of the gain or loss on sale or liquidation, thereby effecting net income for that period.

The monetary/nonmonetary method was given a specific set of rules in United States with the issuance of FAS # 8 in 1975. Because of its controversy, FAS # 8 was later replaced by FAS # 52 in December 1981. Under the monetary/non monetary method, monetary assets (cash, account receivables) and monetary liabilities (current liabilities) are translated at current exchange rates while regular assets are reported at the historical exchange rates. Income statement items are translated at an average exchange rate for that period. However income statement items that are directly associated

with nonmonetary assets and liabilities such as depreciation and cost of goods of goods sold are translated at their historic rate.

The Current/ noncurrent method, which is no longer allowed under GAAP rules, was widely throughout the U.S. used prior to 1976 and is still used by many non-U.S. firms today. The current/noncurrent method translates all current assets and liabilities of foreign affiliates at the home currency exchange rate that is in effect on the date of the statement. Noncurrent assets and liabilities are translated using the historical rates on the dates in which the assets were acquired and the liabilities were incurred.

Items in the income statement are generally translated at the average exchange rate of that period. Income statement items that relate to nonmonetary assets or long-term liabilities are translated using the same rates as the corresponding balance sheet item. Exposure to gains and losses from fluctuating currency values is determined by the net of current assets less current liabilities. Gains and losses on long-term assets and liabilities are not shown on the balance sheet.

There are several ways to manage translation exposure. Among them are balance sheet hedging, forward hedging, and money market hedging.

In balance sheet hedging, a company will try to set an equal amount of exposed foreign currency assets and liabilities on its balance sheet. By making this arrangement for each foreign currency, net translation exposure will be zero so that a change in exchange rates will change the value of the exposed assets in an equal and opposite direction to the change the value of the exposed assets in an equal and opposite direction to the change of the exposed liabilities. It is important to note that since translation exposure is measured by currency, equality of the exposed assets is only necessary on a worldwide basis and not on an individual basis for each foreign affiliate. Costs of balance sheet hedging will depend on relative borrowing costs. An important note is that the balance sheet hedging is a compromise in which denominations of balance sheet accounts is altered, at a cost of operating efficiency or borrowing costs, in order to achieve foreign exchange protection.

When using the forward market hedge translation exposure, a company will sell the exposed currency in the forward market, purchase the exact currency in the spot market on a later date, and then deliver the purchased currency against the forward contract obligation. A formula is set up in determining the necessary size of the relevant forward contract:

<p style="color: blue; margin: 0;">Potential translation loss in dollars</p> <p style="margin: 0;">Forward Contract Size : .....</p> <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="text-align: center;"> <p style="color: blue; margin: 0;">Forward rate in dollar per local currency</p> </div> <div style="text-align: center;"> <p style="margin: 0;">- Expected future spot rate in dollars per local currency unit</p> </div> </div>	
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The difference between the forward rate and the expected future spot rate, will give us the profit per unit of the parent company's reporting currency. Dividing potential translation loss this by number will give the amount of exposed currency that must be sold in forward market.

It is important to note that profits on forwards contracts are subject to taxation yet translation losses are not tax deductible. It is therefore more effective to have a forward contract carried out by a foreign affiliate of the parent company located in a low-tax jurisdiction. In addition, it is important to realize that a forward contract will act as matched hedge against a translation loss only if the company correctly forecasts the future spot exchange rate. A miscalculation in this forecast will create a mismatch in the hedge, causing the company to have an unexpected gain or loss depending on the direction of the error.

The use of a money market hedge in reducing translation exposure is done by borrowing a foreign currency, exchanging the currency for dollars, and then investing those dollars. At the maturity

of the investment, the dollars proceeds would be exchanged back into foreign currency to pay back the loan. To be effective, the maturity of the dollar investment must match the maturity of the foreign investment loan and the amount borrowed should be the exact amount of translation exposure.

## Transaction Exposure

Transaction exposure refers to gains or losses that can arise from settlement of transactions whose terms are stated in foreign currencies. Transactions may include borrowing or lending funds denominated in foreign currencies, acquiring assets or incurring liabilities denominated in foreign currencies, purchasing or selling on credit goods or services whose prices are stated in foreign currencies, or being a party to an unperformed forward foreign exchange contract. The major difference between transaction exposure and translation exposure is that translation exposure is measured only by currency and only from the perspective of the parent company while transaction exposure is measured both by currency and affiliate companies as well.

As a practical example of transaction exposure, if a multinational company has a receivables or payable denominated in a foreign currency, and expects the foreign exchange rate to be at a certain number relative to the home currency on the payment date (paid out or received in), the transaction exposure would be the risk that the exchange rate will be different than what was expected on the payment date

So if a United States based company sold goods on an open account to a Japanese buyer for 400,000 JPY, payment to be made in 30 days, and the United States based company expects to exchange the 400,000 JPY for 5,000 dollars (exchange rate of 80 JPY/\$US) when payment is received, exposure will arise because of the risk that the U.S. firm will receive something other than 5,000 dollars after the Japanese Yens are exchanged for dollars. If the exchange rate would end up at 82 JPY per U.S. dollar, then the U.S. seller would receive only 4,878 dollars, which is 122 dollars less than anticipated. It is important to note that had the United States seller accepted payment only in dollars, than the transaction exposure would have shifted to the Japanese buyer.

Another example of transaction exposure arises when money is borrowed or loaned out and the amount involved is denominated in a foreign currency. So if the U.S. firm borrows 100 million JPY from a Japanese bank at a time when 100 million JPY are worth 1.25 million dollars (exchange rate of 80 JPY/\$US), and five years later the loan is due with the cost of repayment of the principle at 1.67 million dollars (Exchange rate of 60 JPY/\$US), the U.S. Company will have suffered a large transaction loss.

In general, transaction exposure will arise partly from account receivables, all other monetary receivables, and all monetary debt. In addition to the exposed balance sheet items, there are four off-balance sheet items that create transaction exposure:

1. Unfilled customer orders at fixed foreign currency prices: They are account receivables which are not yet recorded on the affiliate companies' books and when denominated in foreign currency, they set up a fixed amount of such currency to be received at a future date, regardless of the foreign exchange rate at that time.
2. Purchase commitments at fixed foreign prices: Obligations to purchase such items as raw materials, components, physical facilities, and energy, which are denominated in foreign currency,
3. Contracts to buy foreign exchange forward: Contracts obligating the affiliate company to deliver at some point in the future, a specific amount of its home currency and receive a predetermined amount of foreign currency at an already established exchange rate. This creates an exposed position similar to that of account receivables.
4. Contracts to sell foreign exchange forward: The exact opposite of a contract to buy foreign exchange forward. It creates an exposed position similar to that of an account payable

The three most common methods used to offset transaction exposure are forward market hedging, money market hedging, and option market hedging. However, many multinational companies will opt not to hedge foreign exchange exposure.

When using a forward contract to hedge transaction foreign exchange exposure, the contract is entered into at the time transaction exposure is created (ex. a sale is made on an open account). Funds to fulfill the contract will be available at the future date in which the balance in the account receivable is collected and therefore the forward is said to be “covered” and the original sale on account is to be a “covered transaction”. The firm has therefore eliminated its foreign exchange risk relative to this transaction.

When using a money market hedge against transaction exposure, both a contract to a loan agreement and source of funds to satisfy the loan agreement is set up. A company looks to use the money market hedge borrows in one currency and exchanges the proceeds for a different currency. Funds to satisfy the loan agreement may be generated from business operations in which the money market hedge is then considered “covered”. However if the funds/currency to repay the loan are to be purchased in the foreign exchange spot market when the loan matures, then the money market hedge will be considered “uncovered”. The main difference between a money market hedge and forward exchange hedge is that the cost of a money market hedge is determined by differential interest rates, while the cost of the forward exchange market hedge is a function of the forward rate quotation.

Foreign currency options have a variety of uses. Put options may be used by construction firms and other exporters when they need to submit a fixed price bid in a foreign currency without knowing until sometime in the future whether their bid will be successful. A put option can be used to hedge the foreign exchange risk either for just the bidding period or for the entire period of potential exposure if the bid is won. If the bid is rejected, the loss is limited to the cost of the option.

As a side note, if the transaction foreign exchange risk is hedged by a forward contract and the bid is rejected, the forward contract will have to be either reversed or eventually fulfilled at an unknown potential loss or gain. The bidder would essentially have an uncovered forward contract.

## **Economics Exposure**

Foreign exchange economics exposure is defined as the possibility that the net present value of a company's expected cash flow will change due to an unexpected change in foreign exchange rates. There can be an upward or downward change in value. This depends on the effect of the exchange rate change on sale, volume, prices, and costs. When looking at the well being of the company from a long-term perspective, economic exposure is far more important than changes caused by translation and transaction exposure. One major problem is that since economics exposure involves estimating future cash flows over an arbitrary period of time, it is almost entirely subjective. Economics exposure does not stem from the accounting process but rather derives from economics analysis. It is total management responsibility since it involves the interaction of strategies in sourcing, production, finance, and marketing.

It is important to note that an expected change in foreign exchange rates is not included in the definition of economics exposure. Both investors and management have already factored this information into their evaluation of expected operating results and market value.

From an investor's perspective, if the foreign exchange market were efficient, any information about expected changes in foreign exchange rates would be widely known and as a result be reflected in a firm's market value. Basically, only unexpected changes in exchange rates, or an inefficient foreign market, would cause market values to change.

From a management perspective, budgeted financial statements already include information about the effect of an expected change in foreign exchange rates.

With regards to economics exposure, an unexpected change in exchange rates will impact a firm's expected cash flow at four levels: Short Run, Medium Run at Equilibrium, Medium Run at Disequilibrium and Long Run.

The short run is generally a firm's one year operating cycle. The gain or loss on cash flows depends on the currency used to denominate those expected cash flows. The currency of denomination cannot be changed for existing obligations such as purchases or sales commitments. In addition, because of the difficulty in changing sales prices and renegotiating factor costs for a short run period, it is almost inevitable that realized cash flows will be different from expected cash flows, which were budgeted earlier. It is important to realize that as time passes, prices and costs can be adjusted relative to change in foreign exchange rates.

Expected medium-run equilibrium cash flows are those that are shown in a firm's two- to five year budget assuming that equilibrium conditions exist among foreign exchange rates, national interest rates, and national inflation rates. If equilibrium exists continuously, a firm will be able to adjust its prices and costs in order to maintain its budgeted position and as a result economic exposure will be zero. If a firm is unable or unwilling to adjust operations, the firm would experience economic exposure because of the unexpected change in cash flows and as a result its market value might be altered. It is important to realize the equilibrium conditions are a component of national monetary, fiscal and balance of payment policies.

In case of medium-run cash flows at disequilibrium a company may not be able to adjust prices and costs to reflect the new competitive condition caused by changes in foreign exchange rates. As a result, the company's realized cash flows will be different from its expected cash flows and the company's market value can change because of unexpected deviations in cash flows.

Long-run cash flows are those cash flows beyond five years. At this level, a firm's cash flows will be influenced by the reactions of existing and potential competitors to foreign exchange rates under disequilibrium conditions. Whether or not a firm is purely domestic or multinational, if they are subject to international competition, then they will be exposed to foreign exchange economic exposure in the long run whenever foreign exchange markets are not continuously in equilibrium.

When it comes to managing economic exposure, the objective of a firm is to anticipate and influence the effect of unexpected changes in exchange rates on future cash flows. This requires that management recognize disequilibrium conditions when they occur, and preparing a strategy to react properly. This can be accomplished if a firm diversifies both its financing base and its operations internationally. When diversifying its financing base, firms will generally try to source funds in more than capital market and in more than one currency.

When diversifying operations, a firm will try to recognize a change in comparative costs in the firm's own plants located in different countries. In addition, it will observe changed profit margin or sales volume in one area compared to another, depending on price and the income elasticity's of demand and competitors reactions. Management might make marginal shifts in sourcing raw materials, components, or finished products. If there is any spare capacity, production runs can be lengthened in one plant and reduced in another. Marketing efforts can be strengthened in export markets where the firm's products have become more price competitive because of the disequilibrium condition.

Variability of a firm's cash flow is reduced by international diversification of its production, sourcing, and sales because exchange rate changes under disequilibrium conditions are likely to increase the firm's competitiveness in some markets while reducing it in others. This can completely neutralize the effects of economic exposure.

## **Conclusion**

This paper addressed the three major types of Foreign exchange exposure which include: translation, transaction, and economic exposure. With global business increasing at a rapid pace, one cannot emphasize the importance of foreign exposure on the firm. This paper addressed the several means of

limiting each of the exposures. This includes management policy such as diversifying their operations on a worldwide basis, to using futures and forward contracts and finally by the use of currency options. Further research should be done to see if companies actually do manage any, some, or all of these risks in the means presented in this paper, and if so, what action(s) companies actually undertake in handling and controlling each of these risks. Further, the potential impact of the future implementation of the International Financial Reporting Standards (IFRS) needs to be addressed in a separate study. We recommend a survey study to explore the expectations of the implementation of IFRS on this topic and to combine between primary and secondary conclusion to reach a better understanding of this topic.

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