**Is Exchange Rate Risk Relevant?**

Some have argued that exchange rate risk is irrelevant. These contentions, in turn, have resulted in counterarguments, as summarized here.

**Purchasing Power Parity Argument**

One argument for exchange rate irrelevance is that, according to purchasing power parity (PPP) theory, exchange rate movements are just a response to differentials in price changes between countries. Therefore, the exchange rate effect is offset by the change in prices.

PPP does not necessarily hold, however, so the exchange rate will not necessarily change in accordance with the inflation differential between the two countries. Since a perfect offsetting effect is unlikely, the firm’s competitive capabilities may indeed be influenced by exchange rate movements. Even if PPP did hold over a very long period of time, this would not comfort managers of MNCs that are focusing on the next quarter or year.

**The Investor Hedge Argument**

A second argument for exchange rate irrelevance is that investors in MNCs can hedge exchange rate risk on their own. The investor hedge argument assumes that investors have complete information on corporate exposure to exchange rate fluctuations as well as the capabilities to correctly insulate their individual exposure. To the extent that investors prefer that investors prefer that corporations perform the hedging for them, exchange rate exposure is relevant to corporations. An MNC may be able to hedge at a lower cost than individual investors. In addition, it has more information about its exposure and can more effectively hedge its exposure.

**Currency Diversification Argument**

Another argument is that if a Kenya-based MNC is well diversified across numerous countries, its value will not be affected by exchange rate movements because of offsetting effects. It is naive, however, to presume that exchange rate effects will offset each other just because an MNC has transactions in many different currencies.

**Stakeholder Diversification Argument**

Some critics also argue that if stakeholders (such as creditors or stockholders) are well diversified, they will be somewhat insulated against losses experienced by an MNC due to exchange rate risk. Many MNCs are similarly affected by exchange rate movements, however, so it is difficult to compose a diversified portfolio of stocks that will be insulated from exchange rate movements.

**Response from MNCs**

Creditors that provide loans to MNCs can experience large losses if the MNCs experience financial problems. Thus, creditors may prefer that the MNCs maintain low exposure to exchange rate risk. Consequently, MNCs that hedge their exposure to risk may be able to borrow funds at a lower cost.

To the extent that MNCs can stabilize their earnings over time by hedging their exchange rate risk, they may also reduce their general operating expenses over time (by avoiding costs of downsizing and restructuring). Many MNCs, including Kenya Airways, and British Airways have attempted to stabilize their earnings with hedging strategies because they believe exchange rate risk is relevant. Further evidence that MNCs consider exchange rate risk to be relevant can be found in annual reports.

**Types of Exposure**

As mentioned in the previous chapter, exchange rates cannot be forecasted with perfect accuracy, but the firm can at least measure its exposure to exchange rate fluctuations. If the firm is highly exposed to exchange rate fluctuations, it can consider techniques to reduce its exposure. Such techniques are identified in the next chapter. Before choosing among them, the firm should first measure its degree of exposure.

Exposure to exchange rate fluctuations comes in three forms:

* Transaction exposure.
* Economic exposure.
* Translation exposure.

Each type of exposure will be discussed in turn.

**TRANSACTION EXPOSURE**

The value of a firm’s future contractual transactions in foreign currencies is affected by exchange rate movements. The sensitivity of the firm’s contractual transactions in foreign currencies to exchange rate movements is referred to as transaction exposure.

Transaction exposure can have a substantial impact on a firm’s value. It is not unusual for a currency to change by as much as 10 percent in a given year. If an exporter denominates its exports in a foreign currency, a 10 percent decline in that currency will reduce the value of its receivables by 10 percent. This effect could possibly eliminate any profits from exporting.

To assess transaction exposure, an MNC needs to

1. *Estimate its net cash flows in each currency and,*

To measure its transaction exposure, an MNC needs to project the consolidated net amount in currency inflows or outflows for all its subsidiaries, categorized by currency. One foreign subsidiary may have inflows of a foreign currency while another has outflows of that same currency. In that case, the MNC’s net cash flows of that currency overall may be negligible. If most of the MNC’s subsidiaries have future inflows in another currency, however, the net cash flows in that currency could be substantial. Estimating the consolidated net cash flows per currency is a useful first step when assessing an MNC’s exposure because it helps to determine the MNC’s overall position in each currency.

*Kisumu Co. conducts its international business in four currencies. Its objective is to first measure its exposure in each currency in the next quarter and then estimate its consolidated cash flows for one quarter ahead, as shown in the exhibit below*

*The information in Table 1 needs to be converted into Shillings so that Kisumu Co. can assess the exposure of each currency by using a standardized measure. For each currency, the net cash flows are converted into Ksh. to determine the Ksh. amount of exposure. Notice that Kisumu has a smaller shilling amount of exposure in Tsh. And E. Birr than in the other currencies. However, this does not necessarily mean that Kisumu will be less affected by these exposures. Recognize that the net inflows or outflows in each foreign currency and the exchange rates at the end of the period are uncertain. Thus, Kisumu might develop a range of possible exchange rates for each currency, as shown in Table 2, instead of a point estimate. In this case, there is a range of net cash flows in Shilling rather than a point estimate. Notice that the range of shilling cash flows resulting from Kisumu’s Tsh. transactions is wide, reflecting the high degree of uncertainty surrounding the Tsh’s value over the next quarter. In contrast, the range of shilling cash flows resulting from the E. Birr transactions is narrow because the E. Birr is expected to be relatively stable over the next quarter.*

Table 1: Estimating Forex exposure- Point Estimate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Currency | Total Inflow | Total Outflow | Net Inflow/ Outflow | Expected Exchange rate at the end of quarter | Net Inflow/ Outflow in Ksh. |
| Ush. | 100,000,000 | 50,000,000 | 50,000,000 | 25 |  |
| Tsh. | 80,000,000 | 70,000,000 | 10,000,000 | 17 |  |
| E. Birr | 20,000,000 | 40,000,000 | (20,000,000) | 0.1 |  |
| SA Rand | 60,000,000 | 20,000,000 | 40,000,000 | 0.09 |  |
|  |  |  |  |  |  |

*Table 1:* Estimating Forex exposure- Interval Estimate

|  |  |  |  |
| --- | --- | --- | --- |
| Currency | Net Inflow/ Outflow | Range of possible Forex rates | Range of possible inflows/ outflows |
| Ush. | 50,000,000 | 25-25.50 |  |
| Tsh. | 10,000,000 | 16.50-18 |  |
| E. Birr | (20,000,000) | 0.1-0.1003 |  |
| SA Rand | 40,000,000 | 0.09-0.094 |  |
|  |  |  |  |

1. *Measure the potential impact of the currency exposure.*

**Measuring the Potential Impact of the Currency Exposure**

The dollar net cash flows of an MNC are generated from a portfolio of currencies. The exposure of the portfolio of currencies can be measured by the standard deviation of the portfolio, which indicates how the portfolio’s value may deviate from what is expected. Consider an MNC that will receive payments in two foreign currencies. The risk (as measured by the standard deviation of monthly percentage changes) of a two-currency portfolio (p) can be estimated as follows:

**Example**

Consider the following example of cash inflows denominated in two currencies, all converted into Ksh.

|  |  |  |  |
| --- | --- | --- | --- |
| **CURRENCY** | **Inflows (Ksh, equivalent)** | **Standard deviation of currency** | **Correlation Coefficient between currencies** |
| **Tsh.** | **10,000,000.00** | **4** | **-0.45** |
| **Ush.** | **25,000,000.00** | **1** |  |

Compute the expected exposure to the currencies. In other words, by how much do you expect your cash flows to fluctuate as a result of movement in exchange rates?

**Measurement of Currency Variability.**

The standard deviation statistic measures the degree of movement for each currency. In any given period, some currencies clearly fluctuate much more than others. Some currencies in emerging markets are very volatile.

**Currency Variability over Time.**

The variability of a currency will not necessarily remain consistent from one time period to another. Nevertheless, an MNC can at least identify currencies whose values are most likely to be stable or highly variable in the future.

**Measurement of Currency Correlations.**

The correlations among currency movements can be measured by their correlation coefficients, which indicate the degree to which two currencies move in relation to each other. The extreme case is perfect positive correlation, which is represented by a correlation coefficient equal to 1.00. Correlations can also be negative, reflecting an inverse relationship between individual movements, the extreme case being -1.00. This can be estimated using time series statistics.

**ECONOMIC EXPOSURE**

The value of a firm’s cash flows can be affected by exchange rate movements if it executes transactions in foreign currencies, receives revenue from foreign customers, or is subject to foreign competition. The sensitivity of the firm’s cash flows to exchange rate movements is referred to as economic exposure (also sometimes referred to as operating exposure). Transaction exposure is a subset of economic exposure. But economic exposure also includes other ways in which a firm’s cash flows can be affected by exchange rate movements.

Table 3: Example of economic exposure due to exchange rate movements

|  |  |
| --- | --- |
| **A Kenyan Firm** | **Ksh. Firm shilling cash flow adversely affected** |
| Has a contract to export products in. which it agreed to accept euros. | Euro depreciates |
| Has a contract to import materials that are priced in Uganda Shillings | Ush. appreciates. |
| Exports products to Uganda that are priced in Ksh and competitors are located in Uganda | Ush. Deppreciates, causing some customers to switch to competitors. |
| Sells products to local customers and its main competitors are based in Uganda. | Ush depreciates, causing customers to switch to competitors. |
|  |  |

**Measuring Economic Exposure**

Since MNCs are affected by economic exposure, they should assess the potential degree of exposure that exists and then determine whether to insulate themselves against it. The following methods are useful:

* Sensitivity analysis.
* Regression analysis.

**TRANSLATION EXPOSURE**

**Translation Exposure**

An MNC creates its financial statements by consolidating all of its individual subsidiaries’ financial statements. A subsidiary’s financial statement is normally measured in its local currency. To be consolidated, each subsidiary’s financial statement must be translated into the currency of the MNC’s parent. Since exchange rates change over time, the translation of the subsidiary’s financial statement into a different currency is affected by exchange rate movements. The exposure of the MNC’s consolidated financial statements to exchange rate fluctuations is known as translation exposure. In particular, subsidiary earnings translated into the reporting currency on the consolidated income statement are subject to changing exchange rates.

To translate earnings, MNCs use a process established by the International Accounting Standards Board (IASB). The prevailing guidelines are set by IASB for translation and for valuing existing currency derivative contracts.

**Does Translation Exposure Matter?**

The relevance of translation exposure can be argued based on a cash flow perspective or a stock price perspective.

**Cash Flow Perspective.**

Translation of financial statements for consolidated reporting purposes does not by itself affect an MNC’s cash flows. The subsidiary earnings do not actually have to be converted into the parent’s currency. If a subsidiary’s local currency is currently weak, the earnings could be retained rather than converted and sent to the parent. The earnings could be reinvested in the subsidiary’s country if feasible opportunities exist.

An MNC’s parent, however, may rely on funding from periodic remittances of earnings by the subsidiary. Even if the subsidiary does not need to remit any earnings today, it will remit earnings at some point in the future. To the extent that today’s spot rate serves as a forecast of the spot rate that will exist when earnings are remitted, a weak foreign currency today results in a forecast of a weak exchange rate at the time that the earnings are remitted. In this case, the expected future cash flows are affected, so translation exposure is relevant.

**Stock Price Perspective.**

Many investors tend to use earnings when valuing firms, either by deriving estimates of expected cash flows from previous earnings or by applying an industry price-earnings (P/E) ratio to expected annual earnings to derive a value per share of stock. Since an MNC’s translation exposure affects its consolidated earnings, it can affect the MNC’s valuation.

**Determinants of Translation Exposure**

Some MNCs are subject to a greater degree of translation exposure than others. An MNC’s degree of translation exposure is dependent on the following:

• The proportion of its business conducted by foreign subsidiaries

• The locations of its foreign subsidiaries

• The accounting methods that it uses

Proportion of Its Business Conducted by Foreign Subsidiaries.

The greater the percentage of an MNC’s business conducted by its foreign subsidiaries, the larger the percentage of a given financial statement item that is susceptible to translation exposure.

**Locations of Foreign Subsidiaries.**

The locations of the subsidiaries can also influence the degree of translation exposure because the financial statement items of each subsidiary are typically measured by the home currency of the subsidiary’s country.

**Accounting Methods.**

An MNC’s degree of translation exposure can be greatly affected by the accounting procedures it uses to translate when consolidating financial statement data.

1. The functional currency of an entity is the currency of the economic environment in which the entity operates.

2. The current exchange rate as of the reporting date is used to translate the assets and liabilities of a foreign entity from its functional currency into the reporting currency.

3. The weighted average exchange rate over the relevant period is used to translate revenue, expenses, and gains and losses of a foreign entity from its functional currency into the reporting currency.

4. Translated income gains or losses due to changes in foreign currency values are not recognized in current net income but are reported as a second component of stockholder’s equity; an exception to this rule is a foreign entity located in a country with high inflation.

5. Realized income gains or losses due to foreign currency transactions are recorded in current net income, although there are some exceptions.

**Summary.**

MNCs with less risk can obtain funds at lower financing costs. Since they may experience more volatile cash flows because of exchange rate movements, exchange rate risk can affect their financing costs.

Thus, MNCs may benefit from hedging exchange rate risk.

Transaction exposure is the exposure of an MNC’s future cash transactions to exchange rate movements. MNCs can measure their transaction exposure by determining their future payables and receivables positions in various currencies, along with the variability levels and correlations of these currencies.

From this information, they can assess how their revenue and costs may change in response to various exchange rate scenarios.

Economic exposure is any exposure of an MNC’s cash flows (direct or indirect) to exchange rate movements. MNCs can attempt to measure their economic exposure by determining the extent to which their cash flows will be affected by their exposure to each foreign currency.

Translation exposure is the exposure of an MNC’s consolidated financial statements to exchange rate movements. To measure translation exposure, MNCs can forecast their earnings in each foreign currency and then determine how their earnings could be affected by the potential exchange rate movements of each currency.

**REVIEW QUESTIONS**

1. Given that shareholders can diversify away an individual firm’s exchange rate risk by investing in a variety of firms, why are firms concerned about exchange rate risk?
2. Bradley, Inc., considers importing its supplies from either Uganda (denominated in Ush.) or Tanzania (denominated in Tsh.) on a monthly basis. The quality is the same for both sources. Once the firm completes the agreement with a supplier, it will be obligated to continue using that supplier for at least 3 years. Based on existing exchange rates, the Ksh. amount to be paid (including transportation costs) will be the same. The firm has no other exposure to exchange rate movements. Given that the firm prefers to have less exchange rate risk, which alternative is preferable? Explain. (No calculations please).
3. Assume your Kenya firm currently exports to Uganda on a monthly basis. The goods are priced in pesos. Once material is received from a source, it is quickly used to produce the product in Kenya, and then the product is exported. Currently, you have no other exposure to exchange rate risk.

You have a choice of purchasing the material from Tanzania (denominated in Tsh.), from Uganda (denominated In Ush.), or from within Kenya (denominated in Ksh.). The quality and your expected cost are similar across the three sources. Which source is preferable, given that you prefer minimal exchange rate risk?

1. Using the information in the previous question, consider a proposal to price the exports to Uganda in Ksh. and to use the Kenya source for material. Would this proposal eliminate the exchange rate risk?
2. Assume that the Ksh. is expected to strengthen against the Ush. over the next several years. Explain how this will affect the consolidated earnings of Kenya-based MNCs with subsidiaries in Uganda.
3. Compare and contrast transaction exposure and economic exposure. Why would an MNC consider examining only its “net” cash flows in each currency when assessing its transaction exposure?
4. Your employer, a large MNC, has asked you to assess its transaction exposure. Its projected cash flows are as follows for the next year. Zambian Kwacha inflows equal 50,000,000 while outflows equal 40,000,000. South African Rand inflows equal 2,000,000 while outflows equal 1,000,000. The spot rate of the Kwacha is Ksh 0.15, while the spot rate of the Rand is Ksh. 10. Assume that the movements in the Kwacha and the Rand are highly correlated. Provide your assessment as to your firm’s degree of transaction exposure (as to whether the exposure is high or low). Substantiate your answer.
5. Nyeri, Inc., produces furniture and has no international business. Its major competitors import most of their furniture from Uganda and then sell it out of retail stores in Kenya. How will Nyeri, Inc., be affected if Uganda’s Shilling strengthens over time?
6. Busia, Inc., exports chairs to Uganda (invoiced in Ksh.) and competes against local Ugandan companies. If purchasing power parity exists, why would Busia not benefit from a stronger Ush?