THE INSTITUTE OF FINANCE MANAGEMENT

INSTITUTE OF FINANCE MANAGEMENT **CHUO CHA USIMAMIZI WA FEDHA**

BACC III, BBF III, BEF III & BAIT III
2023 – 2024

ACU 08103/BFU 08104: INTERNATIONAL FINANCE

LECTURE NOTES

FOREIGN EXCHANGE RISK MANAGEMENT

RISK AND EXPOSURE DEFINED

Risk refers to the probability of incurring a loss. Foreign exchange risk arises from unanticipated changes in exchange rates which give rise to the probability of incurring a loss. In finance, risk is measured by the dispersion around the mean value of the rate of return, i.e. by the variance or the standard deviation. Foreign exchange risk is measured by the variance or the standard deviation of the exchange rate of its rate change.

Foreign exchange exposure is a measure of the potential for firm's profitability, net cash flow, and market value to change because of a change in exchange rates. Exposure is a measure of the amount at risk. Foreign exchange exposure is a measure of how much the domestic currency value of foreign assets and liabilities rises or falls as a result of changes in the exchange rate. An important task of the financial manager is to measure foreign exchange exposure and to manage it so as to maximize the profitability, net cash flow, and market value of the firm. These three components – profits, cash flows, and market value – are the key financial elements of how we view the relative success or failure of a firm. The first two – profits and cash flows – largely give rise to the third, market value.

TYPES OF FOREIGN EXCHANGE EXPOSURE

Transaction Exposure

Transaction exposure measures change in the value of outstanding financial obligations incurred prior to a change in exchange rates but not due to be settled until after the exchange rates change. Thus, it deals with changes in cash flows that result from existing contractual obligations. The purpose of this chapter is to analyze how transaction exposure is measures and managed.

Operating Exposure

Operating Exposure measures the extent to which currency fluctuations can alter a company's future operating cash flows, that is, its future revenues and costs. Any company whose revenues or costs are affected by currency changes has operating exposure, even if it is a purely domestic corporation and has all its cash flows denominated in home currency. Operating exposure, also called economic exposure, competitive exposure, or strategic exposure, measure the change in the present value of the firm resulting from any change in expected future operating cash flows of the firm caused by an unexpected change in exchange rates. The change in value depends on the effect of the exchange rate change on future sales volume, prices and costs.

Transaction exposure and operating exposure exist because of unexpected changes in future cash flows. The difference between the two is that transaction exposure is concerned with future cash flows already contracted for, while operating exposure focuses on expected (not yet contracted for) future cash flows that might change because a change in exchange rates has altered international competitiveness.

Translation Exposure

Translation exposure, also called accounting exposure, is the potential for accounting-derived changes in owner's equity to occur because of the need to "translate" foreign currency financial instatements of foreign subsidiaries into a single reporting currency to prepare worldwide consolidated financial statements. Translation exposure to foreign exchange risk arises if payables and receivables (cash inflows and outflows) are denominated in foreign currencies. Risk is present because the domestic currency values of these items when they are due vary according to changes in the nominal exchange rate. Transaction exposure is clearly a cash flow exposure, which may be associated with trade flows (resulting fro exports and imports), and capital flows (e.g. dividends and interest payments). It involves an actual conversion of foreign currency payables and receivable into the domestic currency. This kind of exposure arises, for example, from (i) a foreign currency asset or a liability that is already recorded on the balance sheet and (ii) a contract or an agreement involving a future foreign currency cash flow.

MANAGEMENT OF FOREIGN EXCHANGE RISK

The Concept of Hedging

Many firms attempt to manage their currency exposures through hedging. Hedging is the taking of a position – either acquiring a cash flow, an asset, or a contract (including a forward contract) – that will rise (or fall) in value and offset (or rise) in the value of an existing position. Therefore hedging protects the owner of the existing asset from loss. However, it also eliminates any gain from an increase in the value of the asset hedged against. The question remains. What is to be gained by the firm from hedging? The value of a firm according to financial theory is the net present value of all expected future cash flows. The fact that these cash flows are expected emphasizes that nothing about the future is certain. If the reported currency value of many of these cash flows is altered by exchange rate changes, a firm that hedges its currency exposures reduces some of the variance in the value of its future expected cash flows. Therefore, currency risk can be defined roughly as the variance in expected cash flows arising from unexpected exchange rate changes.

Why Worry about Foreign Exchange Risk?

The decision to hedge or not to hedge an uncovered or open foreign currency position is basically a speculative decision. It all depends on the expected spot rate of the movement of the exchange rate between the point in time when the decision is taken and when its effect materializes. Remember that, if the decision to hedge is taken, some costs may be incurred up front, such as the premium paid to acquire an option. If the decision to hedge the position is taken, and the exchange rate moves in a favorable direction (e.g. the foreign currency appreciates when the position involves receivables), then some possible gain has been lost. The gain would have been made by leaving the position un-hedged. On the other hand, if the decision not to hedge is taken and the exchange rate moves in an unfavorable direction (e.g. the foreign currency appreciates when the position involves payables), then some loses are incurred. These losses would have been avoided by taking a decision to hedge.
There are at least three arguments whey there is no need to worry about foreign exchange risk:

- If international parity conditions hold, then foreign exchange risk will not arise.
- If it is possible to forecast exchange rate accurately, then foreign exchange risk can be controlled, and the favourable outcome which is precluded by the act of hedging can be enjoyed.
- Shareholders are naturally hedged through diversification, and so there is no need to indulge in costly hedging operations.

Reasons Not to Hedge

Hence the key question: Is a reduction in the variability of cash flows sufficient reason for currency risk management" This question is actually accounting debate in multinational financial management. Opponents of currency hedging commonly make the following arguments:

- Shareholders are much more capable of diversifying currency risk than the management of the firm. If shareholders do not wish to accept the currency risk of any specific firm, they can diversify their portfolios to manage the currency risk in a way that satisfied their individual preferences and risk tolerance.
- Currency risk management does not increase the expected cash flows of the firm. Currency risk management normally consumes some of a firm's resources and so reduces cash flow. The impact on value is a combination of the reduction of cash flow (which by itself lowers value) and the reduction in variance (which by itself increases value).
- Management often conducts hedging activities that benefit management at the expense of the shareholders. The field of finance called agency theory frequently argues that management is generally more risk-averse than shareholders. If the firm's goal is to maximize shareholder wealth, hedging is probably not in the best interest of the shareholders.
- Managers cannot outguess the market. If and when markets are in equilibrium with respect to parity conditions, the expected net present value of the hedging is zero.
- Management's motivation to reduce variability is sometimes driven by accounting reasons. Management may believe that it will be criticized more severally for incurring foreign exchange losses in its financial statements than for incurring similar or even higher cash costs in avoiding the foreign exchange loss. Foreign exchange losses appear in the income statement as a highly visible separate line item or as a footnote, but the higher costs of protection are buried in operating or interest expenses.

Efficient-market theorists believe that investors can see through the "accounting veil" and

therefore have already factored the foreign exchange effect into a firm's market valuation.

Reasons to Hedge

Proponents of hedging cite the following reasons for supporting it:

- Reduction in risk in future cash flows improves the planning capability of the firm. If the firm can predict future cash flows more accurately, it may be able to undertake specific investments or activities that it might otherwise not consider.
- Reduction of risk in future cash flow reduces the likelihood that the firm's cash flows will fall below a necessary minimum. A firm must generate sufficient cash flows to make debt-service payments in order for it to continue to operate. This minimum cash flow point, often referred to as the point of financial distress, lies left of the center of the distribution of expected cash flows. Hedging reduces the likelihood of the firm's cash flows failing to this level.
- Management has a comparative advantage over the individual shareholder in knowing the actual currency risk of the firm. Regardless of the level of disclosure provided by the firm to the public, management always possesses an advantage in the depth and breadth of knowledge concerning the real risks and returns inherent in any firm's business.
- Markets are usually in disequilibrium because of structural and institutional imperfections, as well as unexpected external shocks (such as an oil crisis or terrorist attack). Management is in a better position than shareholders to recognize disequilibrium conditions and to take advantage of one-time opportunities to enhance firm singular, exceptional exposures or the occasional use of hedging when management has a definite expectation of the direction of exchange rates.

TRANSACTION EXPOSURE MANAGEMENT

Transaction Exposure

Transaction Exposure results from transactions that give rise to known, contractually binding future foreign – currency – denominated cash inflows or outflows. As exchange rates change between now and when these transactions settle, so does the value of their associated foreign currency cash flows, leading to currency gains and losses. Examples of transaction exposure for a U.S. company would be the account receivable associated with a sale denominated exposure is rightly part of economic exposure; it is usually lumped under accounting exposure.

Measurement of Transaction Exposure

Transaction exposure measures gains or losses that arise from the settlement of existing financial obligations whose terms are stated in a foreign currency. Transaction exposure arises from the following:

- Purchasing or selling on credit goods or services when prices are stated in foreign currencies.
- Borrowing or lending funds when repayment is to be made in a foreign currency

The most common example of transaction exposure arises when a firm has a receivable or payable denominated in a foreign currency.

Protection against Transaction Exposure: Hedging Currency Risks

A company has an exposure to the risk of an adverse movement in exchange rates whenever it needs to make a payment in a foreign currency at a future date, and whenever it expects to receive income in a foreign currency at a future date. The risk arises because between now and the future date, the exchange rate might move so that:

- If a payment will be made in a foreign currency, the cost of buying the currency will be higher than it would be 'now' because the spot value of the foreign currency strengthens against the company's domestic currency.
- If foreign currency income will be received exchanged for the company's domestic currency, the value of the receipt will be less than it would be 'now' because the spot value of the currency is weakness against the company's domestic currency.

Internal Hedging Techniques

Invoicing in home currency: The currency of invoice decision
A company exporting goods or services has to decide whether to invoice in its own currency, the buyer's currency or another acceptable currency. For example, a UK company exporting goods to German can decide to invoice its customers in sterling. In doing so, it avoids any exposure to a risk of a fall in the value of the euro (which it would have if it invoiced in Euros). The currency risk is shifted to the German customers. A drawback to invoicing in domestic currency is that foreign customers might go to a different supplier who is willing to invoice them in their domestic currency. As always with sales-related decisions, marketing and financing arguments must be balanced.

Leading and lagging
Leading' refers to an immediate payment or the granting of very short term credit. Lagging' refers to the granting (or taking) of long-term credit. In relation to foreign currency settlements, additional benefits can be obtained by the use of these techniques when currency exchange rates are fluctuating (assuming one can forecast the changes). If the settlement is in the payer's currency, then 'leading' would be beneficial to the payer if this currency were weakening against the payee's currency. 'Lagging' would be appropriate for the payer if the payer's currency were strengthening against the payee's. If the settlement was to be made in the payee's currency, then 'lagging' would benefit the payer when the currency is weakening against the payee's currency. 'Leading' would benefit the payer if the payee's currency is strengthening against the payer's.

Multilateral netting and matching
Matching involves the use of receipts in a particular currency to meet payment obligations in the same currency. For example, suppose that a company expects t make payments of US$479,000 in two months time, and also expects to receive income of US$250,000 in two months. The company can use its income of $250,000 to meet some of the payments of $470,000. This reduces to $220,000 its exposure to a rise in the value of the dollar over the next two months. Similarly, suppose that a company expects to receive €700,000 in three months time, when if also expects to incur payments of €300,000. It can use some of its income in Euros to make the payments, so that its net exposure is to income of just €400,000.

Matching receipts and expenditure is a very useful way of partially hedging currency exposures.

It can be organized at group level by the treasury team, so that currency income for one subsidiary can be matched with expenditures in the same currency by another subsidiary. This is most easily managed when all subsidiaries are required to pay their income into a 'group bank account' and all payments are made out of this central account. Successful matching, however, depends on reliable forecasts of amounts and timing of future inflow and outflows of currencies. Netting involves offsetting the group's debtors and creditors in the same currency and only covering the net position. For example there is no point in one subsidiary hedging a $1m debt receivable at the same time as another subsidiary is hedging a $1m debt payable. The parent company treasury department can assess the overall group position and only cover the group's net exposure.

External Hedging Techniques

Forward Market Hedge (Hedging with forward contracts)

Forward contracts are an important method of hedging currency risks. This is because a forward contract can be used now to fix an exchange rate for a future receipt or payment in currency. If the exchange rate is fixed now, there is no need to worry about how the spot rate might change, because the future cash flow in domestic currency is now known with certainty. To hedge with a forward contract, we need to:

- Fix the rate now for buying or selling this foreign currency by entering into a forward exchange transaction with a bank.

Advantages and disadvantages of forward contracts

Forward contracts are used extensively for hedging currency transaction exposures. Advantages include:

- Flexibility with regard to the amount to be covered
- Relatively straightforward both to comprehend and to organize.

Disadvantages include the following:

- It is a contractual commitment which must be completed on the due date. This means that if a payment from the overseas customer is late, the company receiving the payment and wishing to convert it using its forward contract will have a problem. The existing forward contract must be settled, although the bank will arrange a new forward contract for the new date when the currency cash flow is due. To help overcome this problem an 'option date' forward contract can be arranged. This is a forward contract that allows the company to settle a forward contract at an agreed fixed rate of exchange, but at any time between two specified dates. If the currency cash flow occurs between these two dates, the forward contract can be settled at the agreed fixed rate.
- It eliminates the downside risk of an adverse movement in the sport rate, but also prevents any participation in upside potential of any favorable movement in the spot rate. Whatever happens to the actual exchange rate, the forward contract must be honored, even if it would be beneficial to exchange currencies at the sport rate prevailing at that time.

Money Market Hedge

The money markets are markets for wholesale (large-scale) lending and borrowing, or trading in short-term financial instruments. Many companies are able to borrow or deposit funds through their bank in the money markets. Instead of hedging a currency exposure with a forward

contract, a company could use the money markets to lend or borrow, and achieve a similar result. Since forward exchange rates are derived from spot rates and money market interest rates, the end result from hedging should be roughly the same by either method.

TRANSLATION EXPOSURE MANAGEMENT

Translation Exposure: Definition and Nature

Translation or accounting exposure arises from the need to consolidate worldwide operations according to predetermined accounting rules. Assets, liabilities, revenues and expenses must be restated in home currency terms in order to be consolidated into group accounts.

The most common means of protecting against translation exposure is balance sheet hedging. These involve attempting to equalize exposed assets and liabilities. For example, a company may try to reduce its foreign currency denominated assets if it fears a devaluation of the overseas currency, by running down cash balances, chasing debtors and reducing stock levels. At the time it might increase its liabilities by borrowing in the local currency and slowing down payment to creditors. If it can equate its foreign currency assets and liabilities then it will have no net exposure to changes in exchange rates. The Importance of translation exposure to financial management is, however, often questioned. In financial management terms we must ask the question ‘does a translation loss reduce shareholder wealth?’ The answer is that it is unlikely to be of consequence to shareholders who should. In an efficient market, value shares on the basis of the firm’s future cash flows, not on asset values in published accounts. Unless management feels that translation losses will greatly upset the shareholders there would seem little point in protecting against them.

Overview of Translation

Translation in principle is quite simple. Foreign currency financial statements must be restated in the parent company’s reporting currency for consolidation purposes. If the same exchange rate were used to measure each and every line item on the individual statement (income statement, an imbalance sheet), there would be no imbalances resulting from the measurement. But if a different exchange rate were used for different line items on an individual statement, an imbalance would result.

Alternative Translation Methods

Monetary/Nonmonetary Method

The monetary/nonmonetary method differentiates between monetary assets and liabilities – that is, those items that represent a claim to receive, or an obligation to pay, a fixed amount of foreign currency units – and nonmonetary, or physical, assets and liabilities. Monetary items (for example, cash, accounts payable and receivable, and long-term debt) are translated at the current rate, nonmonetary items (for example, inventory, fixed assets, and long-term investments) are translated at historical rates. Income statement items are translated at the average exchange rate during the period, except for revenue and expense items related to nonmonetary assets and liabilities. The latter items, primarily depreciation expense and cost of goods sold, are translated at the same rate as the corresponding balance sheet items. As a result, the cost of goods sold may be translated at a rate different from that used to translate sales.

Temporal Method

The temporal method appears to be a modified version of the monetary/nonmonetary method. The only difference is that under the monetary/nonmonetary method, inventory is always translated at the historical rate, but is can be translated at the current rate if the inventory is shown on the balance sheet at market values. Despite the similarities, the theoretical bases of the two methods are different. The choice of exchange rate for translation is based on the type of asset or liability in the monetary/nonmonetary method, in the temporal method, it is based historical cost accounting system, as the United States now has, most accounting theoreticians probably would argue that the temporal method is the appropriate method for translation. Income statement items normally are translated at an average rate for the reporting period. However, cost of goods sold and depreciation and amortization charges related to balance sheet items carried at past prices are translated at historical rates.

Current Rate Method

The current rate method is the most prevalent in the world today. Under this method, all financial statement line items are translated at the "current" exchange rate with few exceptions. Line items include the following:

- All assets and liabilities are translated at the current rate of exchange: that is, at the rat of exchange in effect on the balance sheet date.
- Income Statement Items. All items, including depreciation and cost of goods sold, are translated at the actual exchange rate on the dates the various revenues, expenses, gains, and losses, were incurred or at appropriately weighted average exchange rate for the period.
- Dividends paid are translated at the exchange rate in effect on the date of payment.
- Common stock and paid-in-capital accounts are translated at historical rates. Year-end retained earnings consist of the original year-beginning retained earnings plus or minus any income or loss for the year.

Gains or losses caused by translation adjustments are not included in the calculation of consolidated net income. Rather, translation gains or losses are reported separately and accumulated in a separate equity reserve account (on the consolidated balance sheet) with a title such as cumulative translation adjustment (CTA). A multitude of different names are used for this reserve account adjustment.

ECONOMIC EXPOSURE MANAGEMENT

Attributes of Economic Exposure

Economic exposure can be separated into two components: transaction exposure an operating exposure. We saw that transaction exposure stems from exchange gains or losses on foreign-currency-denominated contractual obligations. Operating exposure arises because currency fluctuations can alter a company's future revenues and costs – that is, its operating cash flows. Consequently, measuring a firm's operating exposure requires a longer-term perspective, viewing

the firm as an ongoing concern with operations whose cost and price competitiveness could be affected by exchange rate changes. Thus, the firm faces operating exposure the moment it invests in servicing a market subject to foreign competition or in sourcing goods or inputs abroad. This investment includes new-product development, a distribution network, foreign supply contracts, or production facilities. Transaction exposure arises later on and only if the company's commitments lead it to engage in foreign currency-denominated sales or purchases.

Strategic Management of Operating Exposure

The objective of both operating and transaction exposure management is to anticipate and influence the effect of unexpected changes in exchange rates on a firm's future cash flows, rather than merely hoping for the best. To meet this objective, management can diversify the firm's operating and financing base. Management can also change the firm's operating and financing policies.

Diversifying Operations

If a firm's operations are diversified internationally, management is propositioned both to recognize disequilibrium when it occurs and to react competitively. Consider the case where purchasing power parity is temporarily in disequilibrium. Although the disequilibrium may have been unpredictable, management can often recognize its symptoms as soon as they occur. For example, management might notice a change in comparative costs in the firm's own plants located in different countries. It might also observe changed profit margins of sales volume in one area compared to another, depending on price and income elasticities of demand and competitors' reactions.

Diversifying Financing

If a firm diversified its financing sources, it will be prepositioned to take advantage of temporary deviations from the international Fisher effect. If interest rate differentials do not equal expected changed in exchange rates, opportunities to lower a firm's cost of capital will exist. However, to be able to switch financing sources, a firm must already be well known in the international investment community, with banking contacts firmly established. Once again, this is not an option for a domestic firm that has limited its financing to one capital market.

Proactive Management of Operating Exposure

Operating and transaction exposures can be partially managed by adopting operating or financing policies that offset anticipated foreign exchange exposures. Six of the most commonly employed proactive policies are as follows:

- Matching currency cash flows
- Risk-sharing agreements
- Back-to-back or parallel loans
- Currency swaps
- Leads and lags

Matching Currency Cash Flows

One way to offset an anticipated continuous long exposure to a particular currency is to acquire

debt denominated in that currency.

Currency Clauses: Risk-Sharing
An alternative arrangement for managing a long-term cash flow exposure between firms with a continuing buyer-supplier relationship is risk-sharing. Risk-sharing is a contractual arrangement in which the buyer and seller agree to "share" or split currency movement impacts on payments between them. If the two firms are interested in a long-term relationship based on product quality and supplier reliability and not on the whims of the currency markets, a cooperative agreement to share the burden of currency risk management may be in order.

Back-to-Back Loans
A back-to-back loan, also referred to as a parallel loan or credit swap, occurs when two business firms in separate countries arrange to borrow each other's currency for a specific period of time. They return the borrowed currencies at an agreed terminal date. The operation is conducted outside the foreign exchange markets, although spot quotations may be used as a covered hedge against exchange loss, since each company, on its own books, borrows the same currency it repays. Back-to-back loans are also used at a time of actual or anticipated legal limitations on the transfer of investment funds to or from either country.

Currency Swaps
A current swap resembles a back-to-back loan except that it does not appear on a firm's balance sheet. The term swap is widely used to describe a foreign exchange agreement between two parties to exchange a given amount of one currency for another and, after a period of time, to give back the original amounts swapped. Care should be taken to clarify which of the many different swaps is being referred to in a specific case. In a currency swap, a firm and a swap dealer or swap bank agree to exchange an equivalent amount of two different currencies or a specified period of time. Currency swaps can be negotiated for a wide range of maturities up to at least 10 years. If funds are more expensive in one country than another, a fee may be required to compensate for the interest differential. The swap dealer or swap bank acts as a middleman in setting up the swap agreement.

Leads and Lags: Retiming the Transfer of Funds
Firms can reduce both operating and transaction exposure by accelerating or decelerating the timing of payments that must be made or received in foreign currencies. To lead is to pay early. A firm holding a soft currency or that has debts denominated in a hard currency will lead by using the soft currency to pay the hard currency debts as soon as possible. The object is to pay the currency debts before the soft currency drops in value. To lag is to pay late. A firm holding a hard currency and having debts denominated in a soft currency will lag by paying those debts, hoping that less of the hard currency will be needed. If possible, firms will also lead and lag their collection of receivables, collecting soft foreign currency receivables early and collecting hard foreign currency receivables later. Leading and lagging can be done between related firms or with independent firms. Assuming that payments will be made eventually, leading or lagging always results in changing the cash and payables position of one firm, with the reverse effect on the other firm.