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REDUCING EXCHANGE RATE RISK AND EXPOSURE:
THE VALUE OF FOREIGN EXCHANGE CURRENCY
HEDGING STRATEGIES

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Business Administration

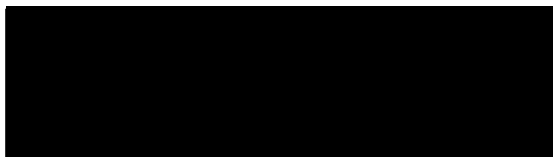
by
Sean McCarron
December 2004

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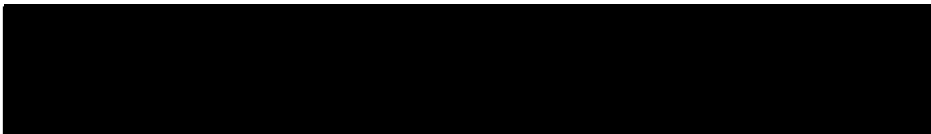
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ABSTRACT

The topic researched for the project will be foreign currency exchange hedging; the available forms, the uses, the procedures, and the value. This project will expand beyond the typical research and examine the value of hedging through the use of different foreign exchange currency trading strategies to small multinational corporations. Analysis will be done on two companies based in Southern California, both engaged in operations outside of the United States.

The primary focus of this study will be on the definition of existing foreign currency exposures and the inherent risk associated with those exposures, followed by an analysis of the hedge methods available to reduce said risk. The goal of the study organization is to first define the nature of foreign currency exposure and risk: transactions exposure, translation or accounting exposure, and economic exposure. Research and discussion will then focus on potential strategies a firm may pursue in managing these exposures and various techniques available to deal with them, including forwards, futures, and foreign exchange options. Further analysis of the selected companies' positions will be conducted with the resulting

conclusions providing a logical framework for other such multinational companies to operate.

The purpose of this study is to provide a framework for small business owners to educate themselves on not only the complexities of foreign currency exchange hedging, but the underlying value therein. Once completed, this project will provide an understanding of the hedging tools available and necessary for small business in the Inland Empire. Those businesses will then be better equipped to face the often tumultuous waters that can be the foreign currency exchange market. With these tools, business owners who are not necessarily finance professional can make better informed decision for their businesses when operating in the currency market.

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CHAPTER ONE

EXPOSURE AND MANAGEMENT, HISTORY

Prior to 1944, exchange rates between national currencies fluctuated tremendously, as there was no indicator to which countries could "peg" a currency. In July of 1944, 730 delegates from forty-four allied nations gathered in Bretton Woods, New Hampshire to forge The Bretton Woods Agreement, the first fully negotiated monetary order in world history, with the intention to govern monetary relations among independent nation-states. The meeting was initiated in an effort to keep money from draining out of a recently war-ravaged Europe.

In the agreement it was decided that currency values would be pegged to the U.S. Dollar, which in turn would be pegged to the price of gold. The arrangements were largely adhered to and ratified by the participating governments. It was expected that the national monetary reserves, supplemented with necessary International Monetary Fund (IMF) credits, would finance any temporary balance of payments disequilibria. This idea later proved insufficient in allowing post-war Europe to recover. Following the war, capitalism the world over suffered from a tremendous dollar shortage. The U.S. was running

tremendous balance of trade surplusses and reserves were immense and growing. The U.S. needed to reverse the flow and push more dollars out into the world market. By 1947 these problems had led the IMF and IBRD to declare they were not capable of dealing with the problems of the Western economic system.

This led to the induction of the Marshall Plan, or the European Recovery Program. The central idea of the plan was for the United States to finance the rebuilding of Europe through the use of grants rather than loans.

Actions such as these and others brought about the modern era of foreign exchange which first emerged in 1971 with the final collapse of the Bretton Woods Agreement. The U.S. Dollar was no longer convertible into gold, signaling an increase in currency market volatility and trading opportunities. The 1973 failure of the Smithsonian and European Joint Float agreements brought about the true beginning of the free-floating currency exchange system. Starting in the 1980's, computer technology extended the reach of the exchange marketplace. Today, the values of the major world currencies are independent of each other, with intervention available to the states only through the central banking system.

In today's market, the term "global economy" is frequently used. With the growing use and understanding of the Internet and other communications methods, smaller U.S. companies are increasingly expanding operations into the global market. In so doing they are faced with corporate foreign currency exposure as potential adverse effects in foreign exchange fluctuations have the ability to affect the value of the firm. Unfortunately many smaller firms lack the necessary understanding of the risk they enter into when exposing themselves to trade involving foreign currency and exchange rates between different nations. U.S. firms operating in, trading with, or purchasing supplies from companies located outside American soil face exposure to the risk inherent to that foreign companies currency and any necessary conversion of that currency into U.S. Dollars (\$).

CHAPTER TWO

LITERATURE REVIEW

It has been suggested that the ability for a multinational corporation or firm to shift its production capabilities from a domestic site to one found abroad is a unique ability to such companies and one that has the potential to reduce the firm's currency exchange rate exposure. Dumas (1978) explained that exposure inherently contains an operational element that would account for the firm's responsiveness to fluctuations in exchange rates.

As global market development and economic integration increase, the number of companies left unaffected by exchange rate movement continues to decline. As Rappaport (1986) and numerous others suggest, the maximization of shareholder value is or should be a substantial objective of corporate management. A coupling of the two factors suggests that the failure to anticipate deviation in exchange rates has the potential to substantially affect a firm's ability to conduct its operations in foreign locations. Furthermore, unexpected fluctuations can increase the cost of foreign-sourced imports and reduce the firm's domestic and international competitiveness.

Involvement in international trade also subjects a firm to transaction risk in the form of both payables and receivables on any foreign currency accepted or used. Such firms may also experience some level of translation risk given the potential for outstanding assets and liabilities held in foreign currency.

A substantive measure of exposure to currency risk according to Adler and Dumas (1984) should meet three criteria. First, the dimension of the measure should be an amount of currency equivalent to the source of the currency. Second, the measure should be consistent with the assets and liabilities that the business may own or owe. Third, the measure should be available for implementation using existing techniques and must have the ability to be hedged with existing financial instruments. It has further been suggested that gains and losses in foreign exchange are to be embraced as the basis for examining the impact of fluctuations in exchange rates on the value of the firm (Jorion, 1990). The study also suggests that the total foreign currency exposure held by a firm has a positive correlation to that firm's degree of involvement abroad; the greater the relative level of international sales, the greater the response of stock

returns to unexpected shifts in exchange rates with the host country.

By June of 1990, the Financial Accounting Standards Board (FASB) began requiring that multinational corporations from the United States provide information on their use of foreign exchange derivatives. Statement of Financial Accounting Standards (SFAS) 105, put forth by the FASB, further requires that companies are to disclose the notional amount of foreign exchange derivatives, with the intent being the measurement of the company's involvement in transactions that may have off-balance sheet repercussions. Goldberg, Tritschler, and Godwin (1995) assert that evidence indicates that although the use of foreign exchange derivatives can be substantial, their use varies across the spectrum of U.S. firms, from zero to sixty percent of total assets.

Firms are increasingly incorporating derivatives into their financial risk management strategies. In a 1995 study Dolde found that 84% of surveyed Fortune 500 companies were using derivatives to manage financial risk. Ernst and Young further surveyed one hundred five multinational firms and found that approximately ninety percent indicated the use of derivatives to hedge currency or other exposures.

Uncovering the properties of companies that use hedging as a strategy has been the prospective subject of a number of studies. Nance, Smith, and Smithson (1993) recorded survey data from their own research and previous research efforts to understand the composition of firms that engage in hedging and those that do not. Their study uncovered that firms with leveraged capital structures tended to hedge more than those without. They further indicated that firms with high dividend payout ratios or heavily involved in research and development efforts found hedging a useful tool. This substantiates Mello and Parsons 1995 assertion that risk management decisions by firms are simply ordinary capital structure decisions and should be analyzed as such. Also in 1995, Dolde analyzed the relationship between hedging and leverage. After controlling for conditions determined to be firm specific, the study found a statistically significant complementary relationship between the two. The study further supports Nance, Smith, and Smithson's findings that companies with high relative research and development costs tend to hedge more than those without. Bodnar, Hayt, Marston, and Smithson (1995) expand the theory, suggesting that large firms tend to use derivatives at a substantially elevated percentage than their smaller counterparts.

In 1996, Allayannis and Ofek analyzed why companies used financial derivatives. Their study was of S&P 500 firms between 1992 and 1993, not in the financial industry. The study evidenced the tendency for firms to use foreign currency derivatives to hedge as opposed to speculation on the FOREX market. The inclusion of exposure factors such as the ratio of international sales to total sales and total international trade to total production reduces the weight given to the previously important explanatory variables of firm size and research and development expenditures.

CHAPTER THREE

HEDGING

In today's business environment in which many corporations are acting on a global level, then management of exposure to foreign currency risk is seeing an increasing surge in the number of companies participating. Large companies today often find foreign currency hedging a necessary center piece to any strategy that involves doing business abroad. Multinational or international corporations conducting operations or trade in which transactions are denominated in a foreign currency are in effect directly exposing the company to losses associated with changes to exchange rates. Corporations have become increasingly cognizant of such risks which has led to the increasing popularity in hedging.

The term hedging, as used within the context of this paper, means to enter into transactions in the financial markets that are designed to reduce the volatility or variance encountered by a company entering into a transaction in which foreign currency is involved. This reduction in volatility on the currency in turn has the positive net effect of reducing potential volatility in the value of the firm itself.

Pessimism in Hedging

For any business small or large, there are a number of reasons why to consider avoiding entering into a hedging strategy. For small business, often the most prohibitive factor is cost. The firm must first locate and contract with an investment firm capable of conducting foreign exchange market transactions. Such firms are often costly to work with. Alternatives to this would be for the business to manage the hedge strategy itself, but such a strategy assumes that employees in the business are equipped to hedge, or that they have the required knowledge and skills.

Holliwell (1998) argued that the primary reason for any business to be wary of establishing a hedging strategy is that they often get it wrong. Corporate systems and processes are inherently unable to control hedging as the management of financial risk can be extraordinarily difficult and rather demanding; the most difficult issue being the identification of where, when, and how much financial risk the company may be incurring.

Copeland and Joshi (1996) and others advance that the main theoretical reason that hedging does not add value is that financial market risks are diversifiable. Typical corporate financial theory states that there is no reward

for a company bearing diversifiable financial risks. Using the Capital Asset Pricing Model (CAPM), the theory asserts that the required rate of return is calculated as the risk free rate plus a risk premium. The risk premium is determined by the covariance of the asset return with the return on the market as a whole. All other risk is irrelevant.

The covariance with the market, or the related measure of beta, measures the amount of systematic risk. In this model, there is no premium gained for risk that can be removed by diversification in holdings.

It is also assumed that based on the efficiency of financial markets that hedging will not alter expected future cash flows, given that the hedge price is the expected future price. The concluding thought being that hedging changes neither the required rate of return nor the expected future cash flows so it cannot add value if the risks being hedged are diversifiable.

Hedging is Value-added

Instituting one or more of the numerous hedging strategies available can create a source for adding value to an existing firm. The value is attainable for small and

large business alike. Further discussion on the hedging strategies available will continue later in the paper.

1. In the instance in which a company's tax scale is progressive, meaning they incur higher marginal tax rates for higher revenue levels, a company with a more volatile revenue stream, such as a sales firm, will pay higher taxes on average than similar companies with the same average income with lower volatility in the revenue stream. Since convexity exists throughout the U.S. corporate tax structure, potential tax benefit exists in a progressive scale system.
2. Using hedging strategies to reduce the volatility of the enterprise value may have the impact of increasing lenders willingness to provide debt. For a small business, accessibility to equity markets is limited and often not a desirable route in which to obtain financing. Reducing ownership share is not often a considerable alternative. The use of debt financing also has the potential to enforce a level of discipline on a businesses management team, in effect reducing agency costs by bonding

future cash flows to the lenders. Rather than having a large pool of capital available to leverage across a multitude of projects, debt financing can be summoned only when project financing is necessary. Debt financing also provides business with a tax shield in interest payments as the U.S. classical tax system allows for the deduction of interest payments.

3. In using hedging to reduce the variance of future cash flows a business also reduces the potential to enter into later financial distress. The reduction in variance and inherent stability significantly reduces the potential for the firm to lose trade credit, eases customer worry about the future of the firm and is settling to employees. Underinvestment in the firm is also reduced. Lenders are less likely to loan money to an unstable company with sign of trouble.
4. Hedging also has managerial incentive. The reduction in volatility for a small business makes the environment more comfortable and allows managers and employees alike to concentrate more on the daily business of the

firm. Suppliers and distributors also share in the increased value of the firm after its risk reduction.

5. Reductions in asymmetrical information may also result from hedging. In a firm that does not use a hedging strategy, lenders are incapable of deciphering where certain business risk comes from and whether that risk is a factor of the market of managerial incompetence. Hedging exposes the level of risk the business faces and reduces the undecipherable risk to lenders, increasing the knowledge of the businesses exposures.

CHAPTER FOUR

DEFINING EXPOSURES

Before analysis of the of firms can be conducted or further discussion of hedging strategies can continue, it is necessary to define the types of exposures that exist to the small business owner, those being transaction, translation, and economic exposures. Transaction exposure can be defined as the potential risk that foreign currency exchange rates will change after financial obligations are entered into. Translation exposure is the accounting impact caused by fluctuations in exchange rates, or the risk that a company's equity, assets, or income will change in value as a result of exchange rate changes. Translation exposure may also be referred to as accounting exposure. Economic exposure covers the long term cash flow to the extent in which the value of the firm will change because of the foreign exchange rate fluctuation.

Transaction Exposure

Transaction exposure can be defined as the potential risk to a firm with known future cash flows in a foreign currency that arises from possible fluctuations in the exchange rate. Firms with potential transaction exposure are those with existing foreign currency denominated

transactions such as accounts payable, receivables, loans, and letters of credit. In essence, any change in the value of the foreign currency will have the effect of altering the cash flows in their exchange to the home currency.

Contingent Exposure

Inherent to any foreign exchange transaction are risks that may exist but do not materialize, known as contingent risks. A frequently used example of contingent risk is the bidding process on projects that will be denominated in foreign currency. When the bidding firm submits its bid it has assumed an expected profit margin on that bid, and often that margin is estimated based on exchange rates when the bid was submitted. The potential exists, especially in the case of government projects that the bid may not be accepted for weeks or even months. Over this period of time exchange rates have the potential to fluctuate and those fluctuations can have serious effects on the bidding firm's ability to fulfill their contractual obligations. The firm with the winning bid would have liked to have entered into a hedge position to offset the currency fluctuations whereas the losing firms would not. The contingent exposure exists as the firms are aware of the currency exposure but are unsure whether it will exist

or not because they cannot be certain they will win the contract.

Translation Exposure

Translation or accounting exposure is the risk that a company's equity, assets, or income will change in value as a result of fluctuations in foreign exchange rates. It is the calculation of loss or profit resulting from the valuation of foreign assets and liabilities for balance sheet purposes, when consolidating into the home currency. If a currency fluctuates during a consolidation period then assets translated at existing current rates are susceptible to the fluctuation in the exchange rate. Historically translated currencies are not susceptible to the same exposure. Accountants use various methods in an attempt to insulate firms from these risks. In many cases, this exposure will be recorded in the financial statements as an exchange rate gain or loss.

Translation and Financial Accounting Standard 52

How U.S. corporations are to report foreign currency accounts in their financial statements is determined by the Financial Accounting Standards Board (FASB). The appropriate translation method and methodology depend on

the functional currency and the accounting translation method used.

FASB statement 52, Foreign Currency Translation, indicates that each subsidiary in a company is required to measure its books in the "functional currency" prior to translation into the parent companies currency. The functional currency is defined as the primary currency the subsidiary company uses in its daily operation. Should it not be obvious what the primary currency is, FAS 52 defines specific methods by which it can be determined.

Accounting Translation Methods

The purpose of a balance sheet is to reflect the valuation of assets and liabilities for a firm. Changes in the valuations listed on the balance sheet can represent capital gains or losses that may require reporting on the income statements. Exogenous factors, such as changes in exchange rates, may change the value of assets and/or liabilities as reported on the balance sheet, thereby causing a capital gain or loss. The valuation of assets and liabilities in a domestic companies foreign interests must be translated into the home countries currency.

The determination of what accounting translation method is appropriate for a given company often depends on

the functional currency of said company, be it the U.S. dollar or a foreign currency. If the functional currency is determined to be the U.S. dollar then the company, branch, or subsidiary operating in the foreign land is considered an extension of the parent company as opposed to an independent operation. Should the functional currency be foreign, the current accounting method is most frequently used.

Economic Exposure

The exposures covered to this point, transaction and translation, are somewhat shortsighted in that they only recognize the current impact of exchange rate movements. Another, economic exposure, considers the effect of currency fluctuation on the discounted value of both the current and future cash flows. To calculate the exposure in the context of economic exposure, one must estimate the effects of exchange rate fluctuations on the firms current and future market segments and investment decisions and opportunities. Clearly an exercise that must be firm specific, and one that can be complicated by two primary factors.

The first complicating factor in calculating economic exposure is the potential price and volume reactions to

changes in given exchange rates. This requires the estimation of numerous values, subjecting the economic measurements to a significant degree of subjectivity and uncertainty. The second is the data gathered to evaluate overall performance is often gathered from an accounting perspective, rather than an economic one.

CHAPTER FIVE

MEASURING EXPOSURES

Accounting versus Cash Flow

Often the determining factor in how a company is going to measure and later hedge their exposure is the objective of the company itself. A firm concerned with the measurement of the impact of currency movement on their balance sheets are often prone to use the accounting approach. Those more interested in the cash impact tend to measure exposure from a cash flow perspective.

It is also not uncommon for a firm to use both. Firms may hedge individual foreign exchange transactions throughout the year while at the same time hedging projected balance sheet figures in an effort to generate favorable end of year accounting statements. Accounting exposure and cash flow exposure often differ, making it vitally important to clearly define the two, having consistent and uniform definitions for both.

Scrutinizing accounting exposure from a consolidated after-tax perspective consists of two components: the monetary assets and liabilities of the parent or domestic company in currencies other than the home currency, and the monetary assets and liabilities of the foreign or

subsidiary entity. Such scrutiny regarding cash flow exposures can be defined as those monetary assets and liabilities in currencies other than the local currency of each of the foreign entities and the parent. The difference between the two being the latter's lack of definition in the monetary assets and liabilities of foreign entities denominated in the local currencies.

Some have asserted that only the current portion of the long-term debt should be included in the definition of cash flow exposures. Countering that position would be the proposition that such a restricted view neglects the potential impact of long term debt, thereby failing to consider the long-term objectives and priorities of the company. The cost of debt denominated in a foreign currency is not limited to the interest cost; one must adjust for exchange rate movements in the stream of interest and principal paybacks for the entire term of the debt to more accurately measure the total cost to the borrower.

In the context of exposure management, the outlined definition of cash flow exposure must be expanded to include any anticipated allowances of profits stemming from the foreign subsidiary. Generating a long term planning horizon that extends several years into the

future is often most desirable. In so doing, anticipated allowances from the subsidiary should be estimated for each of those years. Anticipated allowances in the current fiscal year should be estimated at the beginning of each year and a plan should be implemented to ensure the dollar value of each is preserved.

CHAPTER SIX

MANAGING EXPOSURE

Hedging

Hedging provides a firm with international operations the ability to significantly reduce exposure to risk generated when that firm operates in a foreign currency. The techniques used to hedge can be instituted either internally or externally. Should the firm decide to manage its exposure internally, that firm requires the availability of sources within the firm that are capable of hedging foreign exchange risk. Considerations such as the manipulation of balance sheets, pricing policies, and others fit into this category. External management of exposure requires the firm to seek assistance outside the company. Included in this category would be bank forward foreign exchange contracts, currency futures and options, as well as other financial instruments drawn by outside interests.

The Hedging Process

The hedging process is a long and continual operation, requiring monitoring, updating and activity. It starts with a firm's senior management understanding the potential or recognized impact currency risk has on the

company. Once understood, process and procedures can be implemented to control said risk.

Considerations

A firm is not limited to a specific methodology or tool when considering its available hedging strategies. This obvious benefit can be mitigated by the confusions created when the firm begins its evaluation and selection of a hedge strategy, considering those beneficial to the existing exposure as well as the entire firm. To limit or reduce potential confusion, five factors have been identified in an effort to create a framework for proper hedge selection.

1. Performance - How has the hedge technique performed in the past?
2. Cost/Risk - What is the cost of the hedge versus the risk inherent to that technique?
3. Time - Is the time limit of the hedge consistent with the time incurred by the exposure?
4. Flexibility - Is there potential to change or modify the hedge based on the changing factors in the economy or in the firm itself?
5. Regulations - What is the legal environment regarding the hedge and the parties concerned?

Accounting for Hedging Transactions

Given the complexity of the accounting issues involved, specifically with regard to recognition and measurement issues, the Financial Accounting Standards Board (FASB), implemented a procedure for improving disclosure of necessary financial instruments. Three Statements of Financial Accounting Standards (SFAS) were issued, SFAS 105, SFAS 107, and SFAS 119.

SFAS 105 defines the "Disclosure of Information About Financial Instruments with Off-Balance Sheet Risk and Financial Instruments with Concentration of Credit Risk." It was written with the intent of closing the information gap on off-balance sheet financial instruments and to provide disclosure of the potential accounting loss associated with the items. It was the initial phase of the FASB project devoted to financial statement disclosure of information relating to financial instruments. It addresses the disclosure of information about the extent, nature, and terms of financial instruments with off-balance sheet credit or market risk. It also addresses the significant concentrations of credit risk for all financial instruments.

SFAS 107 defines the "Disclosure about Fair Value of Financial Instruments." This represented the second phase

of the FASB project. It considers disclosures about fair value of all financial instruments, both for assets and liabilities recognized and for those not recognized in the balance sheet. SFAS 107 was amended by SFAS 126 Exemption from Certain Required Disclosures about Financial Instruments for Certain Nonpublic Entities to exclude the requirement of fair value disclosure for nonpublic entities with assets totaling less than \$100 million.

SFAS 119 defines the "Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments." SFAS No. 119 requires disclosure of derivative financial instruments, including futures, forward, swap, and option contracts, and other financial instruments with similar characteristics. The standard requires disclosure of information about financial instruments that are not subject to the requirements of SFAS No. 105. It requires that a distinction be made between financial instruments held or used for trading purposes and financial instruments held or used for purposes other than trading. According to SFAS 119, entities are recommended, but not required, to disclose quantitative information about interest rate, foreign exchange, commodity price, or other market risks of derivative financial instruments.

These statements did not alter existing accounting practices within firms, instead they put forth a mandate for extensive disclosure about the fair values of, and the market and credit risk inherent within financial instruments in general, and derivatives in particular. In 1996 the Securities and Exchange Commission (SEC) further proposed rules that require firms to expand and enhance risk management disclosures.

Hedge Accounting

Hedge accounting is not a practice standardized globally, but there are some universal requirements:

1. Transactions that are part of the hedge must be designated by the enterprise as constituting risk-offsetting transactions.
2. There must be risk reduction as a result of the combined transactions.
3. There must be correlation between the underlying transaction and the risk management transaction taken as a hedge.

The primary purpose of hedge accounting is to provide a match of related gains and losses to avoid the distortion of financial reports. The SEC as well as members of FASB are engaged in discussions over aspects of

the use of hedge accounting in financial reporting. These discussions have the potential to lead to differentiation between the economic effect of a risk management transactions and its reflections in financial reports. The growth in mark-to-market accounting across the globe is also leading to a drastic reduction in hedge accounting applications.

Today there exists no single, comprehensive entity with the responsibility of addressing hedge accounting practices or methodology. As such, there can be tremendous disparity in practice between the numerous financial institutions. Though this void in an authoritative pronouncement exists, there is general agreement that hedging transactions are accounted for in a different manner than those of other purposes. Certain criteria must be met to account for a transaction as a hedge

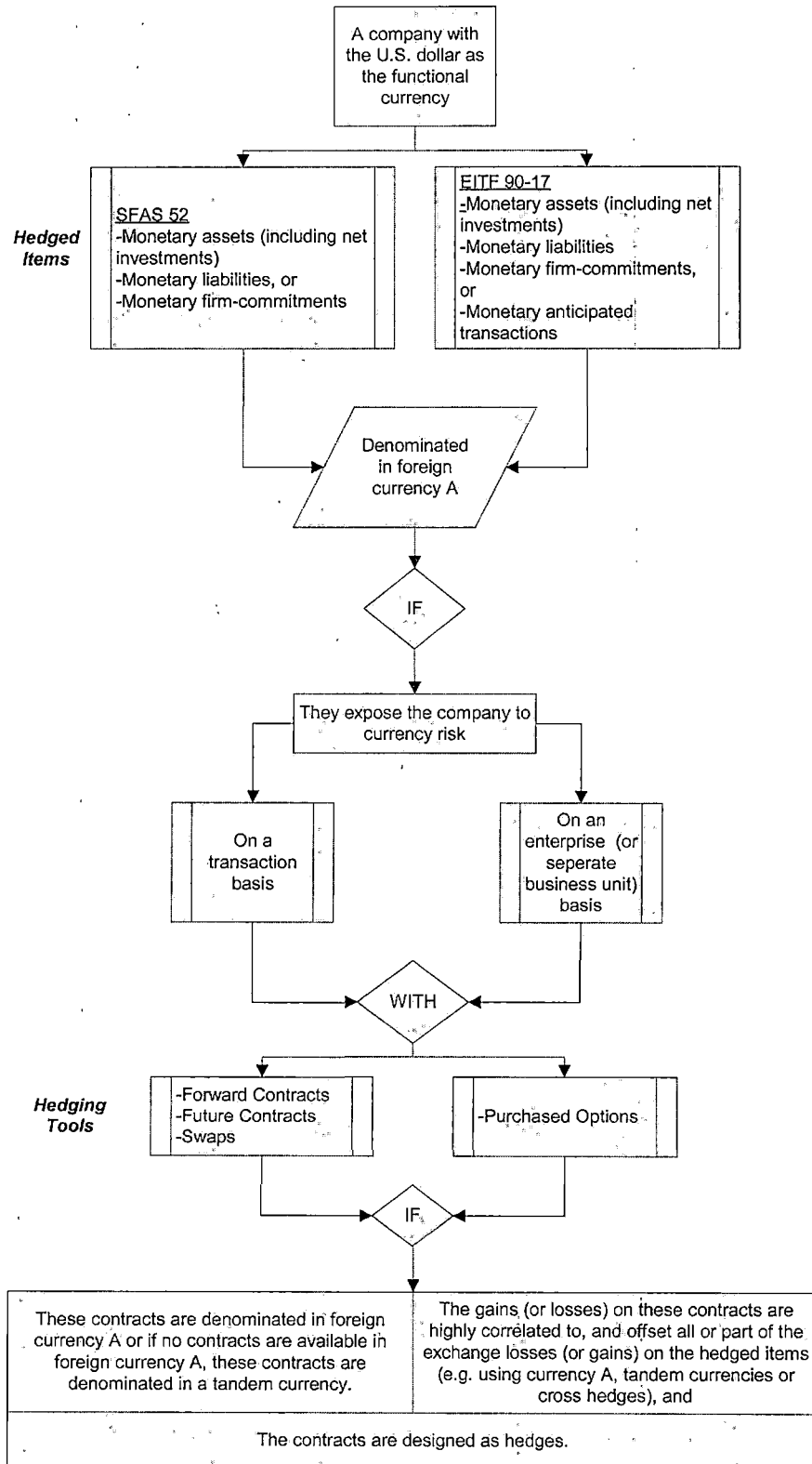


Figure 1. Hedge Accounting Criteria

CHAPTER SEVEN

THE COMPANIES

Company Alpha

Founded in 1996 and incorporated in 2001, Company Alpha launched as a small, family owned pharmaceutical firm focusing its business model on the vitamin and mineral segment of the pharmaceuticals market. Over the last decade the company has experienced tremendous growth, expanding its operations into Canada, China, Hong Kong, Korea, and Vietnam. For the purposes of this study, focus will be limited to the largest market segment, Vietnam.

Alpha is headquartered in Southern California with a second, regional office in Vietnam. Alpha purchases numerous types of vitamins and minerals in bulk. Ninety percent of all purchases are made from a supplier in the United States with the remaining ten percent coming from a supplier in South Korea. All transactions from these suppliers are done using U.S. dollars. The Korean supplier extends a 60 day line of credit to Alpha, which Alpha frequently makes use of. Prices for goods are often finalized contractually, leaving Alpha no exposure to fluctuation in exchange rates between the Korean Won and the U.S. dollar.

Once Alpha takes shipment of the bulk vitamin and mineral orders, employees in the Southern California location repackage the products in smaller, individual use containers, anywhere from a single day supply to bottles lasting a month. The smaller containers are then shipped to Vietnam where they are to be sold, though minor amounts of domestic inventory are now kept on hand for a newly undertaken website.

Vietnamese sales and payments are tendered in either of two methods. All point-of-sale cash transactions are facilitated with the Vietnam Dong. All credit transactions require the purchaser to provide U.S. dollars. If the exchange rate were to change in a manner unfavorable to a consumer buying in bulk on credit, Alpha has an unwritten policy of discounting the purchase cost to shield the customer's investment. There is currently no book keeping method in place for the company to account for it's net gains and losses resulting from this policy.

Given the instability in exchange rates between Vietnam and the United States, the relative weakness of the dong to the dollar, and the third world nature of the Vietnamese economy, Alpha is now seeking a greater ability to project and budget for exchange rates, while

maintaining the ability to offer discounts to customers as a sign of goodwill.

Company Bravo

Company Bravo was founded in 1999 as a small husband and wife business meant to act as a U.S. representative for an LCD manufacturing firm in China, headquartered in Hong Kong. Bravo provides sales and technical support, product warehousing, and customer service for the LCD distributor from their office in Southern California. Through a network of manufacturers' representatives across the United States, the company seeks to provide immediate support for their Chinese distributor.

The Hong Kong site specializes in the design and manufacture of standard and custom LCD's, LCD modules, and assemblies. The company was founded in 1989 with the purpose of offering low prices available from Chinese manufacturers to the international OEM community. Maintained in central China is a 78,000 square foot production and engineering facility that employs over 700 people.

Company Bravo, with its office in San Diego, California, provides the U.S. sales force for the Chinese LCD products. Bravo is not a subsidiary of the Chinese

operation and in fact acts and is its own separate business entity. Bravo develops leads within the United States and is responsible for all domestic sales, using its national network of manufactures' representatives.

Company Bravo was started with the sole intent of representing the Chinese manufacturer in the United States and actually stemmed from a long standing friendship between Alpha's president and the president of the Hong Kong manufacturer. Bravo acts as a representative firm for the LCD maker when negotiating a U.S. deal, but when the deal is finalized, Bravo actually purchases the order from the Chinese plant, using Chinese Yuan. Bravo has been extended a 180-day line of credit which they use only to the extent that the sale is finalized. Bravo's payment from the U.S. purchaser is always in U.S. dollars.

Initially started as a small firm meant only to rep the Southwestern United States, Bravo has seen tremendous growth and demand for the Chinese LCDs. With the increased growth Bravo has a number of transactions with the Chinese plant and is now seeking to limit exposure to the fluctuations between the yuan and dollar. Though the yuan is pegged to the dollar, the extended credit period of 180 can see significant movement in valuation.

Currency Risk Analysis

As defined above, the two study participants are exposed to three types of currency exposure when conducting international operations, those being transaction, translation, and economic exposure. The permutations of each are discussed in greater detail in a subsequent section.

An example of the effect translation exposure can have on Company Alpha would be the year end review of financial statements in the Vietnam office. In this example the statements for the year showed an average net asset position resulting from cash sales to be one billion Vietnamese Dong. Over the same year the value of the U.S. Dollar versus the dong decreased from \$0.00006343 to \$0.00006215. Translation exposure from dong to dollar reduces Alpha's net asset position by \$1,280, from \$63,430 to \$62,150, or by over two percent.

It would appear on the surface, somewhat unnecessary from a small business to need a hedging strategy for its financial statements. Often small businesses are not publicly held companies and as such, are not beholden to stock holder desires for increases in share price. Though true, there is still a benefit to the hedged position for the small business owner. The reduced volatility in

financial statements provides a more stable outlook for the company and in so doing provides an increased level of security for outside investors, including lending institutions such as banks or small business associations. Such reduced risk often leads to reduced interest rates and more a generous loan structure.

A majority of corporations in the United States as well as innumerable small businesses have some form of exposure to currency risk. Simply selling products domestically does not reduce such risk as so much of any companies stock can come from overseas. Though the final distributor in the supply chain may not have purchased from abroad, at some point, some piece used in constructing the good was purchased abroad. That purchaser was subject to direct currency exposure and has likely passed his exposure to his distributors.

Such scenarios apply to small business as well, especially those conducting direct operations with foreign suppliers and/or buyers. Exposure can be mitigated using a number of different financial tools, but any currency risk management policy should be company specific and should begin with the definition and measurement of company specific exposures, be them accounting or cash flow exposures.

Company Alpha

Company Alpha's office in Vietnam acts exclusively as a sales office. No manufacturing, purchasing or repackaging is done in this location. A majority of Alpha's investments in Vietnam are done using the dong, such as procurement of the building and payment of staff and monthly bills. Such activities lead to a net liability exposure for Alpha. Should the U.S. corporate office wish to avoid the potential adverse effects to its financial statements resulting from dollar/dong fluctuation, it must hedge this balance sheet exposure.

Suppose Alpha U.S. decides to seek its after-tax protection from its exposure by purchasing a forward contract of the dong against the dollar. From an accounting perspective, if the dong were to weaken against the dollar, the translation yield would be a net accounting gain with an offsetting cash loss on the forward contract, excluding a discount or premium on the forward dong purchase. The gain is entirely an accounting adjustment or "paper gain," so the net effect of the contract is a cash loss resulting from the purchase. Because the Vietnamese office distributes operating profits to the parent U.S. office, the value of the fund transfer measured in dollars would be reduced, though it

would not be reflected as a loss by an accounting measure. A management approach, contrary to an accounting exposure approach, focused on cash flow would attempt to eliminate the opportunity cost that arose from the reduced dollar value of earnings sent to the U.S. office.

Company Bravo

Company Bravo is based in and operates solely out of the United States and acts primarily as a service business. Bravo manufactures or owns no product line so all investments and payments are done in U.S. dollars. Instead, Bravo faces transaction exposure as they purchase LCDs on letters of credit lasting up to 180 days. Fluctuation in yuan/dollar exchange rates over the course of the credit period can have adverse effects on the realized purchase.

Should Bravo decide to seek after-tax protection from it's exposure by purchasing a forward contract of the yuan against the dollar. From a cash flow perspective, if the yuan were to weaken against the dollar, the transaction yield would be a net cash gain with an offsetting accounting loss on the forward contract, again excluding a discount or premium on the forward yuan purchase. In this instance the gain is a realized cash gain, rather than the

accounting "paper gain," with a loss occurring from the purchase of the forward. The net result would be dependant on the value of the forward contract and the time of realization.

Justification for the contrasting approaches comes in many forms, but it is important to note that financial experts the world over do not agree on a single, specific approach. Those who support the accounting approach to exposure management argue that losses on the books will eventually translate into cash losses. Protection against these losses is desirable, so long as the cost of the cover is not comparatively excessive. Supporters would assert that the cash loss on the hedge is justified by the resulting book gain. Using such an approach would indicate that management is willing to risk current income in return for a potential gain in future income. Conversely, the cash flow approach to exposure management places the emphasis on present cash flows and current income, de-emphasizing future income. Justification for this approach would be that the future potential does not warrant the current loss. In essence, a business should manage it's exposure to currency fluctuations and exchange rate risk by minimizing both present and future cash flow losses. Maximization of the present value stream of future

income requires short term-sacrifices, which create long-term protective measures.

It becomes evident that the two styles contrast and that neither is completely succinct with modern management philosophies. Managers today are required to make decisions now with an eye on the future. Clearly there is no solution that is an obvious choice.

The reduction in asymmetric information is a safe starting point from decision-making. The impacts of current cash flows should be distinguishable from those that arise from the translation of financial statements. Each of the two business must adopt accounting procedures to measure the cash flow effects of currency fluctuation and the affect those fluctuations have on existing operations. This takes into account the fact that management can and does make decisions based on accounting information, as do lenders. The reduction in asymmetrical information between the firm and its outside investors allows those investors to better judge the financial soundness of the company and its management team. This allows the management team more flexibility in the procurement of funds.

Measuring the Impact of Currency Movement

Before one can truly investigate alternatives for exposure management, a proper understanding of accounting and cash flow impacts on currency movements is required. The primary difference between the approaches is that the accounting approach views the impacts of currency movements in relation to the local currency of the entity carrying the exposure whereas the cash flow approach considers it in relation to the currency of the parent. From the cash flow stance, the relative movement between the currency of exposure and the local currency is all that matters.

In the case of Alpha, the cash flow and accounting impacts on the parent's exposure are identical; the difference is in the relation to the Vietnamese subsidiary's exposure. As for Bravo, currency movement and its affect on Bravo's transaction exposure appear in instances such as a period where Bravo might be concerned that yuan payables for imported LCD screens will require a greater amount of U.S. dollars at the settlement of those payables. The concern being that such a possibility could affect Bravo's profitability. Concern in the matter would be less with the potential accounting gain accrued should the dollar appreciate against the yuan. Considered

pre-tax, there is no accounting impact if the yuan does not change in its value against the dollar, nor is there a cash flow effect if the yuan does not change in comparison to the local currency.

Under both the cash flow and accounting methods, the tax effect is the same. The cash flow impact of the currency fluctuations is the portion subject to tax and both individual and consolidated financial statements reflect the implications of local taxes. Foreign exchange gains and losses arising from translation of foreign financial statements into U.S. dollars are not typically subject to U.S. tax as the parent can defer payment of the taxes until receipt of a dividend. Each business unit is subject to taxes on its gains and losses net from the exchange market. Should the unit carrying the currency exposure have a potential realized cash flow impact resulting from fluctuation in exchange rates, it is subject to local tax policy. Often these taxes can be significant and have a direct affect on the earnings of the business, implying serious consideration for either exposure management approaches.

To facilitate a better understanding the after tax impacts of both approaches to each company, we will illustrate examples for each, beginning with Company

Alpha. In the following example the assumption is made that Alpha's Vietnamese subsidiary has one outstanding currency exposure of ₩ 500,000 payable, recorded at \$ / ₫ (Vietnam Dong) = 0.00006343 and \$ / ₩ (Korean Won) = 0.0008666.

Table 1. Alpha's Outstanding Exposure in Vietnamese Dong

Vietnam Subsidiary (₫)			
<i>Inventory</i>	₫6,831,181.05	<i>Payables</i>	₫6,831,181.05 (₩500,000)
<i>Fixed Assets</i>	₫10,000,000	<i>Owner's Equity</i>	₫10,000,000

Table 2. Alpha's Outstanding Exposure in United States Dollars

Vietnam Subsidiary (\$)			
<i>Inventory</i>	\$433.313	<i>Payables</i>	\$433.313 (₩500,000)
<i>Fixed Assets</i>	\$634.317	<i>Owner's Equity</i>	\$634.317

The fixed assets for the Vietnamese office were initially recorded at the dollar/dong rate of 0.00006343. A further assumption in this example is a tax rate of forty percent on exchange rate gains or losses. Presented below are the after tax impacts using both approaches, and

assuming rate changes to \$ / đ = 0.00006200 and

\$ / ₩ = 0.0008400.

Table 3. Alpha's After-tax Impact (Dong)

Vietnam Subsidiary (đ)			
<i>Tax Credit</i>	đ2,732,472.42		
<i>Inventory</i>	đ6,831,181.05	<i>Payables</i>	đ6,831,181.05 (₩500,000)
<i>Fixed Assets</i>	đ10,000,000	<i>Owner's Equity</i>	đ10,634,947.16
Net cash flow effect: đ10,634,947.16 - đ10,000,000 = đ634,947.16			

Table 4. Alpha's After-tax Impact (Dollar)

Vietnam Subsidiary (\$)			
<i>Tax Credit</i>	\$169.4132		
<i>Inventory</i>	\$423.5332	<i>Payables</i>	\$423.5332
<i>Fixed Assets</i>	\$634.317	<i>Owner's Equity</i>	\$659.3667
Net accounting effect: \$659.3667 - \$634.317 = \$25.0497			

In this example regarding Company Bravo the assumption is made that Bravo's has one outstanding currency exposure of ¥3,000,000 payable, recorded at \$ / ¥ (Chinese Yuan) = 0.1208.

Table 5. Bravo's Outstanding Exposure in Chinese Yuan

Company Bravo (¥)			
<i>Inventory</i>	¥3,000,000	<i>Payables</i>	¥3,000,000
<i>Fixed Assets</i>	¥25,000,000	<i>Owner's Equity</i>	¥25,000,000

Table 6. Bravo's Outstanding Exposure in United States Dollars

Company Bravo (\$)			
<i>Inventory</i>	\$362,400	<i>Payables</i>	\$362,400
<i>Fixed Assets</i>	\$3,020,000	<i>Owner's Equity</i>	\$3,020,000

The fixed assets for Bravo were initially recorded at the dollar/yuan rate of 0.1208. A further assumption in this example is a tax rate of forty percent on exchange rate gains or losses. Presented below are the after tax impacts using both approaches, and assuming rates change to $\$ / ¥ = 0.1400$.

Table 7. Bravo's After-tax Impact (Yuan)

Company Bravo (¥)			
<i>Tax Credit</i>	¥1,200,000		
<i>Inventory</i>	¥3,000,000	<i>Payables</i>	¥3,000,000
<i>Fixed Assets</i>	¥25,000,000	<i>Owner's Equity</i>	¥21,050,000
Net cash flow effect: ¥21,050,000 - ¥25,000,000 = -- ¥3,950,000			

Table 8. Bravo's After-tax Impact (Dollar)

Company Bravo (\$)			
<i>Tax Credit</i>	\$168,000		
<i>Inventory</i>	\$420,000	<i>Payables</i>	\$420,000
<i>Fixed Assets</i>	\$3,500,000	<i>Owner's Equity</i>	\$2,947,000
Net accounting effect: \$2,947,000 - \$3,500,000 = -- \$553,000			

Currency Risk Minimization versus Keeping the Competitive Position

There are alternatives available to the two companies when deciding on how to manage economic exposure. Each has the option of adopting either an operational or financial hedging strategy, or, opt for the more frequently used combination of both. It is important to consider that financial instruments such as foreign currency options and forward/future contracts are limited in their ability to hedge long term currency exposures largely because the

economic exposure creates uncertainty in the underlying cash flows, coupled with the existing uncertainty in exchange rates. In essence, adoption a financial hedging strategy by a company is not a guarantee that said organizations competitive position will not encounter adverse effects from a strengthening domestic currency.

Unlike financial hedging, which uses contracts and currency as the hedge item, operational hedging pertains more to company decisions such as the location of production facilities, from whom to purchase, the selection of suppliers, the products produced, market segments in which to operate, and financial strategy such as the core currency for operations. The objective of this strategy being to match input and output sensitivities in an effort to reduce the total degree of exchange exposure.

Empirical evidence suggests that firms capable of implementing internal solutions to reduce currency exposure will do so, assuming the means to do so exist. In a 1984 survey of two hundred and fifty top firms in the United Kingdom, less than one-third of respondents reported not considering effects on currency exposures when making operating decisions. Further studies (Holland 1992) suggest that proper management of foreign exchange risk has no compromising effect on shareholder wealth

maximization. A number of the firms studied appeared to have relative freedom when formulating and revising production, marketing, and financing decisions and each was used for exposure management, but the study also found that a majority of the firms selected operating positions with less flexibility in an effort to benefit from available market competitive advantages. This would indicate that exchange rates were only one of a number of strategic factors under consideration by executive management.

Firms with advantageous positions or economies of scale in production and distribution as well as the transaction costs involved in effecting change significantly inhibits the feasibility of complete operational hedges. In fact a 1995 study by Edelshain found that fewer than four percent of surveyed companies were willing to change suppliers to take advantage of a different currency offering.

Essential to exposure management is the extent to which a firms operating department is involved in the management of strategic risks. To benefit from operational hedges the responsibility for the management of foreign exchange risk management cannot be solely a responsibility of finance professionals or an organized finance

department. Departments such as operations must treat the impact of fluctuating currency rates as a necessary and important strategic consideration and ensure that it is incorporation in long-term strategic planning and decision making, rather than attempting to hedge purely as a reactive measure.

Company Alpha

Company Alpha's primary economic exposures result from expenses and revenues denominated in a total of three foreign currencies. The transactional effects of these exposures are relatively easy to identify and manage over the short term. Indirect effects resulting from these exposures such as changes in the firm's competitive position are more difficult to identify and thereby manage. Measurement and the subsequent management of economic exposure requires that exposure be defined in its entirety. Further, integrated risk assessment requires firms to analyze all aspects of the firm's position, market demand, competitive input supply, and technological risk when assessing economic exposure.

Maintenance of Alpha's competitive position in the Vietnamese market is imperative to the financial stability and prominence of the company. Their current strategy

allows for them to suffer potential financial losses from exchange rate fluctuations if it is necessary.

Alternatively, Alpha has the option of operating purely in the currency of its Vietnamese competition. Doing so would limit the impact the effect of exchange rate movements on profit margins and sales volume, with the assumption being that all competitors would be subject to the same effects.

Company Bravo

Contrary to Alpha, company Bravo's primary economic exposures result from expenses in two currencies and revenues in only one. Again the transactional effects of these exposures are relatively easy to identify and manage over the short term for Bravo.

Because Bravo is a sales/rep based organization, competitive position in the market is the maintenance involved is less necessary. More important to the organization is the ability to meet the demands of individual purchasing firms in terms of cost, delivery, location, or customization. Currently they do suffer small losses and gains from the minor changes in the exchange rates between China and the United States, though the changes are never drastic in nature, given that the Chinese Yuan is pegged to the U.S. dollar. Bravo has the

option of attempting to renegotiate their existing contract with the Chinese manufacturing plant. The intent would be to make all purchases using U.S. dollars, effectively eliminating any existing currency exchange rate fluctuation.

CHAPTER EIGHT

AVAILABLE STRATEGIES

Throughout the course of this study, different options and strategies have been discussed but often lacked significant explanation of detail. In this section, increased breadth is given to a more detailed explanation of the hedging strategies available to companies Alpha and Bravo.

A popular financial strategy is the use of foreign currency denominated debt. It is felt by many that this form of financing is relatively flexible and is advantageous as an add-on to the asset liability management process. Organizations have the ability to issue such debt in period when it would be advantageous and the creation of a financial liability within normal capital structure parameters only has a small impact on the firm's existing or future business operations. Further, the existence of early call or redemption provisions on such debt and the currency swaps market increases a firm's ability to modify their exposure at a later date.

In larger corporations, debt policy is often the responsibility of a finance department which is more

likely involved in the management of currency risk.

Foreign denominated debt may also be considered a hybrid financial strategy having features of both financial and operational hedging strategy.

Typically the most popular operational strategies are those designed to insulate the firm by matching the currency denomination of cash inflows and outflows. Operational matching reduces the size and impact of the currency mismatch. Diversification of a firm's sales across multiple currencies and a differentiation in product offering are tools also used to reduce the sensitivity of sales volumes to price changes caused by exchange rate fluctuations. The differences can be explained by the different questions being asked. Strong support is lent to the arguments relating exchange rate exposure to other strategic decisions with the firm. A firm's exposure is dependant to a certain degree on the elasticity of consumer demand, which in turn, depends on the level of product differentiation. In essence, a firm with a unique product is less subject to economic exposure.

Other alternatives for Alpha and Bravo to consider when evaluating potential hedging strategies are discussed in more expansive detail below. Each of these strategies

is available through varying sources including common financial institutions such as banks or brokerage houses, including Charles Schwab or Wachovia.

Options - An opportunity or privilege sold by one individual or financial institution to another which offers the purchaser the right, but not the obligation, to buy or sell a security at a price agreed upon prior to the sale, during a pre-specified time frame or on a specific date. Options provide flexibility to the buyer, not available on the common markets. They are frequently used to hedge existing holdings including foreign currency exposures.

Call - An option providing the owner with the right, not the obligation, to purchase a specified amount of an underlying asset or security at a specific price at a specific time or within a specific time frame.

Put - An option providing the owner with the right, not the obligation, to sell a specified amount of an underlying asset or security at a specific price at a specific time or within a specific time frame.

Project Bidding - As evidenced by the name, project bidding is the process of proposing one's

services to another in return for some form of monetary compensation. Varying organizations compete with one another to win the opportunity to provide services to the bid seeking firm. Most often overlooked in the process of project bidding is the theory of the "winner's curse." During any auction process a bidder must estimate the true value of a desired good. It is commonly thought that bidders are risk averse and the average bid is expected to be lower than the final value. Inherent to this process is the fact that there will be estimation errors in the process and the winning bid is often significantly higher than the expected final value because the highest overestimation made by any of the bidders will frequently win the auction.

Zero Cost Collar - A form of a positive carry collar that in essence secures the return on the investment through the purchase of a cap and the sale of a floor. Often used in relation to interest rates, options, and equities. An example of a zero cost option collar is the purchase of a put option and the sale of a call

option with a lower strike price. The sale of the call will cap the return if the underlying asset falls in price, but it will also offset the purchase of the put. Being that the upside risk is unlimited on this tool, it can be concerning for a small business to enter into such a contract.

The purpose of options are to provide the holder with the opportunity to purchase or sell an underlying asset, including foreign currency holdings, during a specific time frame at a specific price. American and European options differ in that the European options can only be exercised on the value date where as American options allow exercise within a given time frame, though financial theory would suggest that it is most advantageous to hold until expiration. The option holder is not obligated to exercise the option but does forfeit the premium paid for the option regardless of its use; the premium being money paid by the option buyer to the option seller for the right to execute such a transaction.

Settlement of the option occurs only when it is advantageous for the buyer to exercise the option. Should the underlying asset on a call option appreciate beyond the strike price for that option, then the buyer will

exercise his right to purchase the underlying asset at the lower, pre-specified price. Should the asset not appreciate enough to meet the strike price, the option holder will let the option lapse.

In the scope of the foreign currency market, call options are frequently used to establish a level of protection against strengthening or appreciating currencies, whereas put options are used more to protect against a weakening currency. For small business, the most important consideration in the use of options on foreign currency positions is the cost of purchasing the option itself. Management must decide whether the premium on the option itself will be covered in the projected savings from the hedged position.

Forwards - A contract between two parties in which agree upon a future price and delivery date for an underlying asset. It is a cash market transaction in which the delivery of the asset is deferred until after the contract has been made. Although the delivery is made in the future, the price is determined at the initial trade date. Unlike futures contracts, forward contracts do not have standards and are not traded on exchanges. Small businesses can use forwards as a hedge because it is a contract that

can be negotiated between the two parties involved in the transaction. It's lack of formality allows a more personal structure to the contract and provisions can be put in place that are relevant only to the parties involved.

Break Forward - A forward exchange contract specific to the foreign exchange market in which one party has the right, but again not the obligation, to terminate the contract at one or more pre-determined times during the life of the transaction.

Using Company Alpha as an example, given that they are a U.S. company with an office in Vietnam. At the current exchange rate, one U.S. Dollar buys 15,765 Vietnam Dong. Alpha's management grows concerned of Dong depreciation over the medium term. Alpha management considers selling Dong forward for five years against Dollars. The forward exchange rate is 15,674. The forward points are therefore in favor of the company; in essence the foreign exchange rate is better than the spot rate. Rather than locking themselves into this forward rate, Alpha management could elect to enter into a break forward at 15,700. While the rate is not nearly as attractive as the

previous rate, the company has the flexibility to break the contract in three years rather than five. This option is available to companies such as Alpha and Bravo as they both have the obvious desire to protect against adverse rate movements in the future. Both also have legitimate business need to break the forward contract in an effort to limit downside, but that must be weighed against the less advantageous forward rate as compared to a traditional foreign exchange forward.

Window Forward - A window forward contract gives you a range of days (a "window" of time) on which to buy or sell the foreign currency. Window forwards are often used when there is uncertainty regarding the actual payment date.

Floating Rate Par Forward - A Par Forward in which one of the legs is dependent upon the floating interest rate of the currency rather than the fixed rate. The holder is able to manage the foreign exchange and interest rate components of forward foreign exchange exposure separately thereby providing the holder with greater flexibility. A Floating Rate Par Forward can be converted back to the standard Par Forward once

interest rate views have changed. A standard Par Forward rate being dependant upon the differential between the fixed interest rates between two currencies and the spot foreign exchange rate. In essence, the holder is receiving the fixed rate of the currency bought and paying the fixed rate of the currency sold.

Non-Deliverable Forward - A way to hedge exposures in emerging market currencies where a conventional forward market does not exist or is restricted. Like a conventional forward, a non-deliverable forward makes it possible to hedge future currency exposure. However, in contrast to a conventional forward, a non-deliverable forward is settled in U.S. dollars and involves no physical exchange of foreign currencies at maturity.

Rolling Par Forward - A Rolling Par Forward is a modified version of that standard Par Forward, the original having a defined maturity. One party in a Rolling Par Forward has the right to extend the maturity of the contract, but said extension must be transacted at the existing market rate. The contracted Par Forward rate is

adjusted to reflect the extended maturity at the time of extension.

Swaps - A transaction that involves the exchanging of principal and interest in one currency for the same principal and interest in another currency. Currency swaps were originally created in an effort to avoid problems arising from exchange controls.

Cross Currency Swap - Each leg of a cross currency swap is denominated in a different currency. There are two principal amounts, one for each currency. Typically the exchange rate used to determine the principals is the existing spot rate though the forward foreign exchange rate can be used for delayed start transactions. Parties involved in the swap must agree to exchange principal amounts at maturity and the procedure can be replicated using on-balance sheet instruments. It can be argued that all foreign exchange forwards can be described as cross currency swaps as they are agreements to exchange two streams of cash flows in different currencies.

Linear Forex Linked Swap - An interest rate swap in which the fixed interest rate leg is linked to

the performance of a defined foreign exchange rate. Any change in the rate will result in a linear change in the fixed rate paid or received under the swap agreement. This type of swap is typically used for integrated hedging. By linking the foreign exchange and interest rate exposures, adverse currency movements can translate into offsetting interest rate gains and vice versa.

Exotic Options - Any option contract that is not a standard options contract. A typical or standard options contract such as a call or put would be referred to as a "vanilla" option. Exotic options can be the blending of multiple contracts or be an extensive maneuvering of a single contract.

Knock-In Swaption - An option that only comes to fruition when a pre-specified spot level is reached. Once the option comes into existence it acts as any other option would; settling at expiry in the typical manner, assuming that if it is in-the-money it will be exercised and if it is out-of-the-money it will lapse. Should the

option fail to reach the knock-in level prior to maturity, the option will not exist.

Knock-in options were created to provide option holders with a potentially more attractive pay-off when looking to sell options as part of a hedging strategy. They are most commonly used in conjunction with standard options to construct cost-effective hedging strategies.

Knock-Out Swaption - This option type provides the option holder with protection against adverse currency movements. In addition to the normal option variables, the buyer also selects a knock-out price which is a level at which the option lapses and the buyer is left uncovered. If the knock-out price is met prior to maturity the buyer must then choose between remaining uncovered, dealing in the spot or forward markets, or selecting new option protection. If the knock-out price is not reached, the option is settled at expiry in the typical manner way.

Knockout levels are often set such that the option lapses when it is out of-the-money, when the spot price has moved in a direction favorable to the

underlying exposure. The appropriate rate may depend upon the customer's currency forecasts or may be related to the relative premium cost of the option. The closer the knock-out level is to the current spot rate the cheaper the option. Generally knock-out levels are set at a point where the user will be happy to initiate spot/forward cover, or at a level just above/below important resistance/support levels. Knock-out options have been designed to provide customers with a high level of foreign exchange protection at a lower cost than standard currency options, but without removing a company's ability to profit from favorable currency movements. A company wishing to gain cost-effective protection against unfavorable currency movements and also expecting the spot rate to trend without significant correction is the most likely candidate for a knock-out.

CHAPTER NINE

RECOMMENDATIONS

Successfully hedging in the foreign currency market, be it large or small companies, requires an adequate process for projecting currency movement. Further implementing strategies base on those projections requires the company to have a clearly defined vision and plan of action. In a small business, all relevant parties from shipping, to operations, to management, and outside bankers as well, must have a concise understanding of the exchange rate exposure faced by the company, and those parties must be made aware of the alternatives available to cover those exposures. Anticipated or projected currency fluctuation and its impact on the performance of the company must be adequately examined from both the short and long term perspective before any organization can select a suitable exposure management strategy. Financial theory suggests that the long-term objective governing every exposure management decision should be the maximization of the present value of all net cash inflows from the sum of all operating units. The amount of protection desired on an exposure depends on the following four factors as minimum criteria.

1. The management approach selected for the exposure.
2. The after-tax exposure consistent with the selected approach.
3. The existing level of exchange risk.
4. The cost of covering the exposure.

The projection of future currency movements and their impact on a company's foreign exchange exposure is necessary in the evaluation of the degree of exchange risk relevant to the maintenance of an unhedged or partially hedged position. To better estimate the level of risk, each currency exposure within the company must be expressed on an after-tax basis and must also maintain cohesiveness with the chosen management approach. The impact of currency movements as measured by exchange loss can then be compared against the cost of obtaining and holding cover through the least costly alternative.

As previously mentioned, taxes are an important factor when considering currency fluctuations, implying that all currency movement should be measured net of taxes. Because tax rates vary from country to country, currency exposures originating from different countries should be treated separately. To accurately measure the consolidated after-tax net exposure of a company, said

company must identify each item of the exposure by its currency of denomination, and properly adjust for the effects from local tax policy. Different approaches to management provide different formulae for calculation.

The currency exposure of the parent company on an after-tax basis is identical under both approaches and is equal to:

$$\text{Pre-Tax Exposure} \times (1 - \text{Local Tax Rate})$$

Conversely, the foreign exchange currency exposures of a subsidiary overseas create the potential for additional after-tax exposures in the foreign currency. Using a cash flow approach to management, this additional exposure would be equal to:

$$\text{-Pre-Tax Exposure} \times \text{Spot Rate of Exposed Currency} \times \left[(1 - \text{Local Tax Rate}) / (\text{Spot Rate of local Currency}) \right]$$

Using an accounting approach creates an after-tax exposure in the local currency equal to:

$$\text{Pre-Tax Exposure} \times \text{Spot Rate of Exposed Currency} \times \left[(1 - \text{Local Tax Rate}) / (\text{Spot Rate of local Currency}) \right]$$

Below, the previously revered formulas are applied to the company specific examples.

Company Alpha

Using a centralized cash flow approach for Alpha, the pre-tax liability exposure of ₪6,831,181.05 from the Vietnamese subsidiary is identical to an after liability exposure of ₪4,098,708.63 and an after-tax liability exposure of ₪2,732,472.5524.

Company Bravo

Using a centralized cash flow approach for Bravo, the pre-tax liability exposure of ¥3,000,000 from the purchase of Chinese LCDs is identical to an after liability exposure of ¥1,200,000 and an after-tax liability exposure of ¥1,200,006.

Though the formulas may initially appear relatively simplistic, the underlying calculations are often not direct, primarily when considering foreign currency exposures for subsidiaries residing abroad. Obviously for companies with numerous exposures, automation of the calculations is desirable and even necessary when attempting to calculate the complete after-tax net position in all involved currencies under both approaches. The impacts of anticipated currency movements given different economic and currency forecasts may be simulated

as an estimate of the level of risk to which the company is exposed.

A system designed to evaluate exposure would be responsible for generating accurate real-time information from each of the companies operating units, calculate and compare potential impacts of projected currency fluctuation under both management approaches, evaluate and select appropriate protective management strategies, and estimate the cost of implementation is necessary for this type of foreign currency exposure management. Such systems are available and are in fact used by many large corporations today, but for small business the purchase, implementation, and staffing costs for such a system would be financially overwhelming, to the point of being useless. Instead small businesses such as Alpha and Bravo have available to them bank and brokerage houses that provide such services. Relevant to these businesses would be the administrative costs imposed by the financial institution of choice.

Because exchange exposure management is anticipatory, emphasis must be placed on forecasting, both in terms of cash flows and projected balance sheet alterations. Inherently this would require additional reporting elements, though with the pervasiveness of the internet,

organizations have the ability to defray some of the cost involved by doing internal research prior to reaching out to financial institutions. Depending on the length and breadth of the exposure and the currency in which is denominated, should projections indicate that over the short term there is little projected slide, companies such as Bravo can avoid the cost of implementing the hedge based on the publicly available information.

Accounting exposure risk is defined as the potential effect on financial statements when foreign currencies held by a company or subsidiary thereof, or income streams are translated into a single functional currency used by the parent company. Conversely, economic exposure can arise from any number of company specific activities such as parent/subsidiary loans or inventories. Economic exposures tend to have more significant impact on future cash flows, revenues, profits, investment, and borrowing ability.

CHAPTER TEN

CONCLUSION

To conclude, both companies Alpha and Bravo should use the model below when considering foreign exchange related transactions because their business models make foreign exchange risk inherently necessary.

Initially, exposure management must be made anticipatory, based on the perception of future risk and present positions. This allows management to be pro-active, rather than reactive when it comes to currency positions held by the company. Once this is done, control over the exposure risk must be centralized within the organization. For small businesses such as Alpha and Bravo, who have limited numbers of employees, this should not be problematic, though Alpha must make it a priority so as to avoid confusion between the U.S. and Vietnamese offices.

With the processes centralized, the next step is to review all reporting systems in the company, be them manual or automatic to ensure their accuracy and timeliness. This process should be undertaken with a member of the prospective financial institution so that

the company can coordinate with the institution and insure the proper data is being generated and transmitted.

When the companies and financial institutions have concurred on the accuracy and legitimacy of the data being reported, they can begin considering covers for the economic and transactional exposures faced, given the maximum potential translation losses are considered to be unacceptable by management. Such a policy implies a level of flexibility for the company in that they are not completely covered at all times in all exposures.

Further analysis of the exposure and its implications after-taxes becomes necessary at this stage. Such analysis should again be undertaken in collusion with the financial institution, being called on to incorporate the hedging strategies as well as the individual companies' accountants or accounting firms. Each of the organizations will need to closely investigate current forecasts for exchange rates, ensuring that a broad perspective of alternative sources is considered.

As the prospective strategy becomes more solidified within the fiber of the company, exchange management may become a small profit center for the company, depending on their selection of bankers. This is not necessarily a decision factor when selecting strategies and companies,

rather an upside to good management. It is also important to consider the effects the any selected exposure strategy on business contracts, functions, and dealings.

Foreign currency exposure management is not a tool exclusive to large firms in the United States. American small business can take advantage of the tools as well, they need only be more selective, careful, and informed when selecting strategies and institutions to assist with the implementation of those strategies. Cost can certainly be a prohibitive factor for many companies and that is why it is imperative that each considers the expense against the advantage provided by the hedge strategies available to them.

As indicated in the previous text, no one hedge strategy is fit for all companies and not all companies must hedge all exposures. Hedging foreign currency exposure can be a risky proposition and one that no small business should simply dive into. Investigating alternatives, strategies, and financial institutions prior to launching any strategy will be beneficial to the company in the long term. As with any small business transaction, those willing to put in the time and effort will reap the rewards.

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