

A FRAMEWORK FOR GLOBAL FINANCING CHOICES*

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I. INTRODUCTION

In contrast with the firm operating within a single country whose financing choices typically are limited to the type of instruments it issues and the timing of these issues, the multinational firm must decide on the currency of issue, the jurisdiction of issue, the corporate legal vehicle through which the issue is made, and, in the case where the funds are raised in a legal unit different from the one where they are needed, the form of inter-affiliate transfer of the funds. In making these choices, the firms must consider the availability of funds, their relative costs, and the extent to which they either modify or offset the firm's operating risks. It must take into account not only the tax and agency cost considerations that determine a desirable overall capital structure, but interest rates in relation to expectations of currency movements, the variability of exchange rates and, hence, of financing costs, actual and potential credit and exchange controls, and the interaction between financial structure and political risk.

Financing choices require complex trade-offs between the expected after-tax cost of financing and risk. While these trade-offs can be subsumed under the overall objective of maximizing the market value of the firm's shares, they must be formulated more explicitly since they involve not only the risk of the firm's shares as constituents of investors' portfolios, but the total risk of the firm as well.

The choice of trade-offs to be made in establishing a worldwide financial policy requires an explicit analytical framework. Various authors have proposed solutions to part of this overall problem,¹ yet few comprehensive solutions have been suggested. Further, the "total system" mathematical programming approaches that have been outlined

typically are far too complex for meaningful application yet omit important aspects of the problem.² In this paper, we outline an overall approach to financing choices which incorporates the most relevant considerations, yet is relatively simple because it breaks down the overall problem into several largely separable components.

We separate the special issues of the firm operating internationally into three subproblems:

- 1) minimizing taxes,
- 2) managing currency and political risks, and
- 3) exploiting financial market distortions.³

These three subproblems, in turn, can be broken down into "passive" and "active" components, where passive choices are those that do not depend on special information or forecasting skills and active choices are those that exploit special information or forecasting skills. In this sense, both arbitrage and hedging are passive, while speculation is active.

This paper is organized in seven parts. In Part II we discuss the basic considerations inherent in all financing choices. In Parts III, IV, and V we develop the three subproblems: minimizing taxes, managing risks, and exploiting market distortions. In Part VI we discuss the relation of these three subproblems to the firm's overall capital structure. Finally, in Part VII we identify the conditions under which the subproblems are truly separable and draw overall conclusions regarding financing policy.

II. BASIC CONSIDERATIONS IN INTERNATIONAL FINANCING CHOICES

The Firm's Objective

We assume that the firm seeks to maximize the market value of its shares. However, we recognize that this is a complex problem even if we accept as valid the standard capital asset pricing model (CAPM) for the firm's home country.⁴ This is because the specific risks of a firm's activities and, hence, the total risk of the equity as residual claim on the firm feed back to the firm's expected cash flows through financial distress, including but not limited to the possibility of bankruptcy, as well as through behavioral impacts on management which can be characterized as increased agency costs. Thus we specify the objective function of the firm as

$$\text{Max } V_F = \sum_j V_j - P(\sigma) \quad (1)$$

where V_j is the present value of each of the firm's activities (identifiable cash flow streams) as a constituent in investors' portfolios in a capital market characterized by the CAPM and $P(\sigma)$ is a penalty factor reflecting costs of financial distress and agency that are a function of the total risk of the (present value) of the firm's residual cash flows.⁵

The inclusion of a penalty factor that depends on total risk provides the basis for hedging commodity price and currency risks. Otherwise, financing choices will depend only on the additive net present values of each transaction, a far simpler but less realistic problem. The only relevant choices under such circumstances would be those that either reduced taxes or were bargains.

Passive versus Active Policies

Financing choices often involve taking advantage of perceived bargains as well as reducing taxes or risks. Because of the complexity of these considerations, however, in many cases the reasons for a specific choice are not made explicit and one or more of the elements may be overlooked. A useful way to think about financing choices is to separate passive from active considerations using the analogy from investment management. Passive considerations are those that are relevant even if all financing options are assumed to be fairly priced--that is, when there are no bargains because markets work well and the firm has no special information. Active considerations are those that depend on the ability to spot bargains and take positions to exploit them.

Passive considerations lead to tax arbitrage and hedging. Active considerations, in contrast, lead to speculation. Financial market arbitrage does not fit neatly in the breakdown since it depends on market distortions, but not necessarily on the special information possessed by the firm. However, if the definition of passive considerations is broadened to include all those that don't involve any special information, then most arbitrage falls into this category as well.

Passive choices logically precede active choices. Thus, in any situation a firm should first determine what choices it would make if it had no special information and then decide how far to alter its overall financing choices to exploit a perceived bargain. This, of course, would involve a trade-off between the present value of the bargain, taking into account its systematic risk, and the penalty resulting from its impact on the total risk of the firm. Again, arbitrage opportunities differ, since

they have positive net present values and no impact on corporate risk. As a result, they can be taken in any order with respect to the choices hinging on passive and active considerations.

III. MINIMIZING TAXES

The asymmetrical tax treatment of various components of financial cost such as dividend payments versus interest expenses and exchange losses versus exchange gains often means that equality of before-tax costs will lead to inequality in after-tax costs. Moreover, the U.S. and various European countries impose withholding taxes on dividends and interest paid to foreign investors by domestic corporations, leading to a proliferation of foreign finance subsidiaries designed to avoid this additional tax burden.

Financing choices aimed at reducing taxes typically have two components: 1) selecting the tax-minimizing investment, currency, jurisdiction, and vehicle for external issues and 2) selecting the tax-favored vehicle and currency for internal (inter-affiliate) financial transfers to minimize transfer taxes and position profits or losses in the jurisdiction that will minimize overall income taxes paid. We discuss each major element in turn.

Structure of External Claims

Choice of Investment. Since interest payments on debt are tax-deductible whereas dividends are not, there is an incentive to increase the firm's financial leverage. In addition, since principal repatriation is tax-free whereas dividend payments may lead to further taxation, it is clear that parent company financing of its affiliates in the form of debt rather than equity has certain tax advantages. These and other factors are discussed in Section VI.

Choice of Currency. International covered interest arbitrage normally ensures that the annualized forward exchange premium or discount equals the nominal yield differential between debt denominated in

different currencies. Moreover, a rational expectations approach to exchange rates implies that the forward premium or discount equals the expected rate of change of the exchange rate adjusted by an appropriate risk premium.⁶ Thus, a firm that is not concerned with the total risk of its cash flows would be indifferent between issuing debt in one currency or another. The presence of taxes, however, may distort the interest arbitrage relationship from the perspective of the firm since its tax situation may differ from that of the marginal transactions in the market. For example, Shapiro [1978] has shown that if arbitrage and speculation equilibrate real yields before tax, then the classic corporate prescription to issue weak currency debt is always correct on an after-tax basis from the standpoint of minimizing expected financing costs, except in the case of a firm operating under the laws of a country such as Sweden which permits unrealized exchange losses on foreign currency debt to be recognized immediately for tax purposes while taxes on exchange gains are deferred until realized.⁷ Although this doesn't mean that it is always cheaper for firms based in Sweden to issue hard currency debt, the fact that Swedish tax law accelerates tax credits for foreign exchange losses shifts the balance towards borrowing in currencies likely to appreciate relative to the krona. By contrast, England is a special case where government regulations reinforce the rule to borrow in a weak local currency. This is because England's Inland Revenue will not permit exchange losses on the principal amount of foreign currency loans to be tax-deductible.

Choice of Jurisdiction. To the extent that the choice of currency to be borrowed can be separated from the choice of the country in which the borrowing takes place or in which the borrowing firm is domiciled, the

above rule of thumb regarding borrowing weak currencies no longer holds. The firm will want to borrow so as to maximize its tax deductions. As long as national tax systems are not indexed for inflation, it clearly will benefit most by borrowing in the country with the highest inflation and nominal interest rates in order to maximize interest deductions. However, only if interest charges and gains or losses on currency movements are not treated equivalently will this depend on the currency that is borrowed.

Choice of Vehicle. In the U.S., the withholding tax rate on dividend and interest payments to foreign investors varies between 0 percent and 30 percent, depending on the bilateral tax treaty with the foreign country to which these payments are made. Even though this tax is nominally paid by the foreign recipient, foreign investors demand a higher before-tax rate of return as compensation, thus shifting the incidence of the tax to the security issuer.

The approach taken by many American multinationals to avoid these taxes is to establish foreign finance subsidiaries. An international finance subsidiary is a subsidiary incorporated in the U.S. (usually in Delaware) whose sole purpose is to issue debentures overseas and invest the proceeds in foreign operations. If less than 20 percent of the gross income of the finance subsidiary is from U.S. sources (a so-called "80-20" corporation), the interest paid by the finance subsidiary to its foreign bondholders will not be subject to U.S. withholding taxes. Foreign bondholders, however, are still subject to estate taxes. In addition, if some of the issue is used to finance U.S. operations, then the 80-20 rule might not be met (i.e., more than 20 percent of its income might come from U.S. sources). For these reasons, many companies have turned to using offshore financing subsidiaries.

An offshore finance subsidiary is a wholly-owned affiliate incorporated overseas, usually in a tax haven country such as Luxembourg, Switzerland or the Netherland Antilles, whose function is to issue securities abroad for use in either the parent's domestic or foreign business. The Netherland Antilles (N.A.) is a particularly attractive location for such a venture since the bilateral tax treaty between the U.S. and N.A. specifically exempts interest payments by the finance subsidiary to foreign bondholders from U.S. withholding tax, even where 100 percent of the finance subsidiary's gross income is derived from U.S. sources (because proceeds were lent to the parent).

Structure of Internal Transfers

To the extent that tax minimization requires that the firm issue claims in countries other than where the funds are required, it must transfer the funds internally. The way this is done will have important tax implications. If internal financial transfers are "arm's length," reflecting external financing costs, then the potential advantages outlined in the previous section are largely negated. However, by appropriate choice of the instrument, and in the case of debt claims, currency and interest rate, withholding taxes on transfers within the firm can be reduced or avoided and revenues or costs can be shifted to jurisdictions where they have the most favorable tax consequences.⁸

IV. MANAGING RISKS

In principle, firms should not try to minimize risks. Rather, they should take risks whenever they expect to be rewarded for doing so. This is captured in the capital asset pricing model (CAPM) rule to invest in all projects whose expected returns exceed the required return given the projects' systematic risk. The objective function introduced above (eq. (1)), though, adds a further consideration. To the extent that a particular risk element adds significantly to a firm's total risk, it will want to lay off that risk to reduce the penalty factor as long as the cost of doing so is not too great. If risk contracts are priced according to the CAPM, for example, transactions shifting such risks will have zero net present value. Examples of various risks which firms may seek to lay off include currency risks, potential risks, market risks, and commodity prices risks. Each is discussed below.

Foreign Exchange Risks

If financing opportunities in various currencies are fairly priced, firms can structure their liabilities in such a way as to reduce their exposure to foreign exchange risk at no cost in terms of V_j . In the case of contractual items, this simply involves matching net positive positions in each currency with borrowing of similar maturity, with the goal being to offset unanticipated changes in the home currency value of operating cash flows with identical changes in the home currency cost of servicing its liabilities. With non-contractual operating cash flows, the same principle applies although perfect hedging is impossible due to the many uncertainties concerning the effects of currency changes on operating flows and the fact that changes in relative prices across countries are associated with but not perfectly correlated with variations in the exchange rate..

Political Risk

In contrast to the hedging of exchange risks, where the firm seeks financing that will offset risks inherent in the business, the use of financing to reduce political risk typically involves mechanisms to avoid certain risks, such as those of exchange convertibility, or mechanisms that actually change the risk itself, as in the case of expropriation or other direct political act.

Firms can sometimes reduce the risk of currency inconvertibility they face appropriate inter-affiliate financing. This includes investing parent funds as debt rather than equity, arranging back-to-back and parallel loans which interpose a bank between the parent and the subsidiary, and using local financing to the extent possible.

Another approach used by MNCs to reduce their political risk exposure is to raise capital for a foreign investment from the host and other governments, international development agencies, overseas banks, and from customers, with payment to be provided out of production, rather than supply parent company raised or guaranteed capital. Since repayment is tied to the project's success, the firm(s) sponsoring the project can create an international network of banks, government agencies, and customers with a vested interest in the faithful fulfillment of the host government's contract with the sponsoring firm(s). Any expropriation threat is likely to upset relations with customers, banks, and governments worldwide. Moran [1973] shows how this strategy was used successfully by Kennecott to finance a major copper mine expansion in Chile. Despite the subsequent rise to power of Salvador Allende, a politician who promised to expropriate all foreign holdings in Chile with "ni un centavo" in compensation, Allende was forced to honor prior government commitments to Kennecott.

Market Risk.

Just as in a well-functioning market a firm can lay off currency risks at no cost and thus reduce the penalty term in the objective function (Eq. 1), it also can arrange its financing to shift certain key business risks to investors with sufficiently diversified portfolios to be concerned only with the systematic component of these risks. An example would be the silver-linked bonds issued by the Sunshine Mining Corporation or the oil-linked bonds issued by Mexico.

Firms also may arrange their financing to influence the behavior of other market participants so as to reduce the risks they face. For example, some firms sell their project's or plant's expected output in advance to their customer on the basis of mutual advantage. The purchaser benefits by receiving a relatively stable source of supply, usually at a discount from the market price. The seller also benefits by having an assured outlet for its product as well as a contract which it can then discount with a consortium of banks, i.e., it sells collection rights on these contracts to the banks. This is quite similar to factoring but on a far grander scale. It is also possible at times to arrange for direct loans from customers. The cost involves not only the interest rate on the loan, which is often relatively low, but also a discount from the market price.

V. EXPLOITING CAPITAL MARKET DISTORTIONS

Government credit and capital controls often lead to deviations from the equilibrium tendencies of interest rate parity, forward parity, and international Fisher parity. As a result, the firm may encounter financing choices that are not fairly priced. Some of these can be exploited through arbitrage, which requires no special forecasting skills, but others may require speculation on uncertain future outcomes. Further, even in the absence of government intervention, firms may be able to identify instances where there are opportunities for arbitrage or speculation. In fact, opportunistic financing by firms is a key factor in assuring that the various equilibrium conditions hold. The most consistent opportunities, though, will result either from credit and exchange controls or explicit financial subsidies.

The condition for arbitrage is

$$1 + R \neq (1 + R^*) * \frac{F}{S} \quad (2)$$

where R and R^* are the nominal interest rates in the home and foreign currencies respectively and F and S are the forward and spot rates in terms of direct quotes (home currency price of foreign currency).

Arbitrage opportunities are most likely between controlled or subsidized domestic rates and freely determined offshore rates, in which case a comparison of the two rates in a single currency is all that is necessary.

The condition for speculation is

$$1 + R \neq (1 + R^*) * \frac{CE(\tilde{S})}{S} \quad (3)$$

where $CE(\tilde{S})$ is the certainly equivalent of the future spot rate, which may differ from the expected spot rate if \tilde{S} has a non-zero systematic

risk (β) or if the foreign country in question is a significant net borrower.⁹ Since the expected (certainty equivalent) gain from speculation requires taking a position, it must be traded off against the impact of the position on the firm's total risk (σ) (Eq. 1). This impact will be given by the beta coefficient of the foreign currency position relative to the firm's total cash flows, itself a function of the size of the position relative to the market value of the firm's equity.

Government Credit and Capital Controls

Governments often intervene in domestic financial markets in order to achieve goals other than economic efficiency. For example, a government might limit corporate borrowing in order to hold down interest rates, thereby providing its finance ministry with a low-cost source of funds to meet a budget deficit. Or overseas investment flows may be restricted, as they were in the United States from 1968 to 1974 under the Overseas Foreign Direct Investment (OFDI) regulations.

Where the government does restrict access to local credit markets, local interest rates are usually at a lower-than-equilibrium level on a risk-adjusted basis. If there is an effective offshore market for the currency, the controls will result in a difference between domestic and offshore rates and thus give rise to an arbitrage opportunity. The firm can borrow in the domestic market and, to the extent that the short position exceeds its desired passive position in that currency, the firm can lend the same currency in offshore markets or, equivalently, transform the short position to a position in another currency through forward or swap transactions which will be linked to the offshore rate. As a result, the firm should borrow as much as possible in the credit-rationed market. In many instances, the MNC with its multiple

citizenship has greater access to these low-cost funds, and moreover, has a greater ability to shift this capital elsewhere by means of its internal financial transfer system.

If there is no offshore market, the mispriced credit can be exploited only by taking a risk. As a result, the firm will have to trade off the positive net present value against the effect on its total risk. As a result, the firm will not necessarily borrow as much as possible.

Government Subsidies

Despite the often-hostile rhetoric against the multinational firm, many governments offer incentives to MNCs to influence their production and export sourcing decisions. Direct investment incentives include interest rate subsidies, very long loan maturities, loan guarantees, official repatriation guarantees, direct grants related to project size, favorable prices for land and favorable terms for the building of plants. Governments will also often agree to build transportation, communications and other links to those factories. Some indirect incentives include corporate income tax holidays, accelerated depreciation, and a reduction or elimination of the payment of other business taxes and import duties on capital equipment and raw materials.¹⁰

In addition, all governments of developed nations have some form of export financing agency whose purpose is to boost local exports by providing long repayment periods, low interest rates and low-cost political and economic risk insurance. These export credit programs can often be used to advantage by multinationals. The form of use will depend on whether the firm is looking to export or import goods or services but the basic strategy remains the same--shop around among the various export credit agencies for the best possible financing

arrangement.

Export Financing Strategy. Massey-Ferguson, the multinational Canadian farm equipment manufacturer, provides a good example of how MNCs are able to increase financial subsidies by playing off various national export credit programs against each other.¹⁴

The key to Massey's strategy is to view the many foreign countries in which it has plants not only as markets but also as potential sources of financing for exports to third countries. For example, in early 1978, Massey-Ferguson had the opportunity to ship 7,200 tractors worth \$53 million to Turkey but was unwilling to assume the risk of currency inconvertibility. Turkey at that time already owed \$2 billion to various foreign creditors and it was uncertain whether it would be able to come up with dollars to pay off its debts (especially since its reserves were at about zero).

Massey solved this problem by manufacturing these tractors at its Brazilian subsidiary, Massey-Ferguson do Brazil, and selling them to Brazil's Interbras, the trading company arm of Petrobras, the Brazilian national oil corporation. Interbras in turn arranged to sell the tractors to Turkey and pay Massey in cruzeiros. The cruzeiro financing for Interbras came from Cacex, the Banco do Brazil department that is in charge of foreign trade. Cacex underwrote all the political, commercial, and exchange risks as part of the Brazilian government's intense export promotion drive. Prior to choosing Brazil as a supply point, Massey made a point of shopping around to get the best export credit deal available.

Import Financing Strategy. Firms engaged in projects that have sizable import requirements may be able to finance these imports with government-funded credits. These export credits are a very desirable

form of financing because they usually carry low (below market) interest rates and long repayment periods. Since these loans are almost always tied to procurement in the agency's country, the firm needs to draw up a list of goods and services required for the project and relate them to potential sources country by country. Where there is overlap among the potential suppliers, the purchasing firms may have leverage to extract more favorable financing terms from the various export credit agencies involved.

Regional and International Development Banks. Organizations such as the World Bank and Inter-American Development Bank, which are discussed in the next section, are potential sources of low-cost, long-term, fixed-cost funds for certain types of ventures. The time-consuming nature of arranging financing from them, however, in part due to their insistence on conducting their own in-house feasibility studies, usually leaves them as a secondary source of funds. Their participation may be indispensable, however, for projects such as roads, power plants, schools, communications facilities, and housing for employees that require heavy infrastructure investments. These infrastructure investments are the most difficult part of a project to arrange financing for because they generate no cash flow of their own. Thus, loans or grants from an international or regional development bank are often essential to fill a gap in the project financing plan.

Maintaining Financial Flexibility

The existence of credit or exchange controls also is a source of risk to a firm. If the controls are effective, the firm may not be able to obtain financing when it needs it. In order to reduce this risk and increase its ability to exploit opportunities when they arise, the firm

should seek to diversify its sources of funds.

Diversification of Fund Sources. A key element of any MNC's global strategy should be to gain access to a broad range of fund sources, in order to lessen its dependence on any one financial market. A side benefit is that the firm is also able to internationalize its sources of economic and financial information, providing a useful counterweight to its domestic information sources and aiding in its financial decision-making process.

An interesting example of this strategy is provided by Natomas, the San Francisco-based oil producer. In 1977, Natomas sold a \$30 million seven-year Eurobond issue even though it could have obtained funds at a lower cost by drawing on its existing revolving credit lines or by selling commercial paper.

According to Natomas, the key purpose of this Euroissue was to introduce the company's name to international investors as part of its global financial strategy.¹² By floating a Eurobond, the firm was able to make the acquaintance of some of the largest non-U.S. financial institutions in the world including Swiss Bank Corp., the issue's lead manager. Each lead underwriter was handpicked by the company with an eye to its overall financing needs. For example, a Swiss bank was picked as manager because Natomas felt that European banks, and Swiss banks in particular, have greater placing power with long-term investors than U.S. underwriters operating in Europe. In addition, these European institutions were expected to serve Natomas as a source of market and economic information to counterbalance the input it already was receiving from U.S. banks.

For similar reasons, a number of Japanese firms have recently begun

to sell equity shares in the United States. In 1976, for example, Pioneer raised over \$27 million in the U.S. through the sale of four million shares of Pioneer common stock. This was in keeping with its multilateral financing strategy, designed to familiarize U.S. investors with its name.¹³ In conjunction with this sale, Pioneer had previously applied for listing of its stock on the New York Stock Exchange.

Excess Borrowing. Most firms have lines of credit with a number of banks, given them the right to borrow up to a given credit limit. Unused balances carry a commitment fee, normally on the order of 1/2 percent per annum. Since these lines represent a valuable call option on bank lending if there is any chance that credit will be rationed in some future period, most banks periodically review each credit limit to see if the customer's account activity level justifies that credit line. Some firms are willing to borrow funds that they don't require (and then place them on deposit) in order to maintain their credit limit in the event of a tight money situation. In effect, they are buying insurance against the possibility of being squeezed out of the money market. One measure of the cost of this policy is the difference between the borrowing rate and the deposit rate, multiplied by the average amount of borrowed funds placed on deposit.

VI. ESTABLISHING A WORLDWIDE FINANCIAL STRUCTURE

In the three previous sections we discussed various motivations for using particular types of financing, but while knowledge of the costs and benefits of each individual source of funds is helpful, it is not sufficient to establish an optimal global financial plan. This requires consideration not only of the component costs of capital, but also of how the use of one source affects the cost and availability of other sources. A firm that uses too much debt might find the cost of equity (and new debt) financing prohibitive. The capital structure problem for the multinational enterprise, therefore, is to determine the mix of debt and equity for the parent entity and for all consolidated and unconsolidated subsidiaries which maximizes shareholder wealth. In this section, we discuss the selection of a parent capital structure, the determination of affiliate financial structures, and several related issues including the impact of parent guarantees and consolidation on the MNC's debt capacity.

Parent Financial Structure

For many years, ever since the appearance of the first article by Modigliani and Miller [1958] on capital structure, there has been controversy in the financial literature as to whether the relative proportions of debt and equity in a company's capital structure affect its value. We now know, thanks to Modigliani and Miller, that if the probability distribution of corporate cash flows is independent of the firm's capital structure, then the value of the firm is also independent of its capital structure. The presence of taxes, bankruptcy costs, and various agency costs associated with the separation of ownership and control, however, does alter the distribution of future cash flows, invalidating the Modigliani-Miller irrelevance theorem.

Taxes and Default Risk. It is generally accepted today by academicians that an optimal capital structure does exist, particularly when taxes and bankruptcy costs are considered. Debt should be substituted for equity until the point at which the tax advantages of debt are more than offset by the added costs of bankruptcy. An indication of the likely acceptable proportions of each type of security in the optimal capital structure can be determined by analyzing other firms in the industry, discussions with security analysis familiar with the industry, and an analysis of the company's ability to service debt under various possible future scenarios.

The determination of an appropriate debt/equity level is especially complicated for a global corporation, since it must concern itself with the capital structures of numerous overseas affiliates and a multiplicity of different laws and government regulations. The worldwide capital structure, however, need not be just a residual of the decisions made in individual subsidiaries. The parent does have the ability to offset a highly leveraged overseas financial structure with a more conservative home country debt policy in order to achieve a target debt-equity mix for the firm as a whole.

We focus on the consolidated financial structure because we assume that suppliers of capital to the multinational firm associate the risk of default with the MNC's worldwide debt ratio. This is primarily because bankruptcy or other forms of financial distress in an overseas subsidiary could seriously impair the parent company's ability to operate domestically. Any deviations from the MNC's target capital structure will cause adjustment in the mix of debt and equity used to finance future investments. If the perceived risk of default is affected by the

source of funds in addition to the ratio of total debt to assets, however, then the multinational firm has a more complex optimization problem which may allow it to discriminate monopsonistically among lenders in different markets.

Another factor that may be relevant in establishing a worldwide debt ratio is the empirical evidence that earnings variability appears to be a decreasing function of foreign-source earnings.¹⁴ Since the risk of bankruptcy for a firm is dependent on its total earnings variability, the earnings diversification provided by its foreign operations may enable the multinational firm to leverage itself more highly than a purely domestic corporation, without increasing its default risk.

Agency Costs. The traditional Modigliani-Miller literature gives little guidance regarding capital structure. This is especially true when one considers that bankruptcy costs are relatively small and that debt existed even in the absence of corporate income taxes.

An alternative theory of optimal capital structure, proposed by Jensen and Meckling [1976], is based on a recognition of the problems that arise because of the separation of ownership and control.¹⁵ Given this division, there is little reason to believe that managers, who serve as agents for the owners, will always act in the best interest of the shareholders. The agency conflict between managers and outside shareholders, according to Jensen and Meckling, derives from two principal sources. The first is management's tendency to itself consume some of the firm's resources in the form of various perquisites. The second and perhaps more important conflict arises from the fact that as a manager's equity interest falls, his willingness to work hard and take risks in launching new products or businesses will suffer. It is this

entrepreneurial spirit which is the driving force in any firm and any business that lacks it will eventually decline. Thus, as outside equity accounts for a larger share of corporate ownership, there is a corresponding decrease in managerial incentive, resulting in higher agency costs.

With respect to debt, there is a similar incentive problem. Managers (and shareholders) could expropriate the wealth of bondholders by actions taken after the debt has been sold, which were not anticipated by bondholders at the time they bought debt. With a highly leveraged firm, owners will be strongly motivated to engage in highly risky projects where they will benefit greatly if successful. If these investments pay off, the owners gain handsomely, while if unsuccessful, the bondholders bear most of the costs.

On the other hand, if management's income is largely derived from the firm, management may be unduly risk-averse, passing up profitable opportunities that the firm's shareholders would prefer to invest in.

The net result of these agency problems is that the amounts and riskiness of future cash flows are not independent of the firm's ownership structure. In order to minimize the agency costs, shareholders and bondholders resort to several different devices. These include providing incentives, such as options, to managers to act in accordance with shareholder wealth maximization, bearing monitoring costs in the form of audits and other surveillance methods, bonding managers so as to limit their capacity to harm the stockholders, and including various restrictive covenants in bond indenture provisions. Resources will be expended on these various bonding/monitoring activities up to the point at which the marginal costs of such activities just equal their marginal

benefits. As the percentage of outside equity or debt in the capital structure rises, so do the associated agency costs. Consequently, it pays to expend more resources to monitor corporate management. The optimal capital structure for a given amount of outside financing is achieved when total agency costs are minimized. This is the point at which the marginal agency cost associated with selling additional debt just equals the marginal agency cost of additional equity.

As we shall see, the theory of agency provides new insights into the issues of affiliate financial structure, parent guarantees, and joint venture arrangements.

Subsidiary Financial Structure

A problem that has long perplexed financial executives of multinational corporations is how to arrange the capital structures of their foreign affiliates and what factors are relevant in making this decision. One key question is whether subsidiary financial structures should:

- a. conform to parent company norms;
- b. conform to the capitalization norms established in each country;
- or
- c. vary, so as to take advantage of opportunities to minimize the MNC's cost of capital.

As we have already seen, a principal reason the debt/equity ratio matters so much is because the firm's degree of leverage determines its financial risk. What is often overlooked, however, when deciding on a wholly-owned subsidiary's funding is that any accounting rendition of separate capital structure for the subsidiary is illusory unless the parent is willing to allow its affiliate to default on its debt. As

long as the rest of the MNC group has a legal or moral obligation to prevent the affiliate from defaulting, the individual unit has no independent capital structure.¹⁶ Rather its true debt/equity ratio is equal to that of the consolidated group.

The irrelevance of subsidiary financial structures is apparently recognized by multinationals as well. In a 1979 survey by Business International of eight U.S.-based MNCs, most of the firm expressed little concern with the debt-equity mixes of their foreign affiliates.¹⁷ One possible reason for this lack of concern is the fact that, for most of the firms interviewed, their affiliate debt ratios had not significantly raised their consolidated debt ratios. Again, however, their focus was on their worldwide rather than individual capital structures. The third alternative, therefore, to vary affiliate financial structures so as to take advantage of local financing opportunities, appears to be the appropriate choice. Thus, within the constraints set by foreign statutory or minimum equity requirements and the need to maintain a worldwide financial structure, a multinational corporation should finance its requirements in such a manner as to minimize its average cost of capital.

A subsidiary with a capital structure similar to its parent may miss out on profitable opportunities to lower its cost of funds. For example, rigid adherence to a fixed debt/equity ratio may not allow a subsidiary to take advantage of government-subsidized debt or low-cost loans from international agencies. Furthermore, it may be worthwhile to raise funds locally if the country is politically risky. In the event the affiliate is expropriated, for instance, it would default on all loans from local financial institutions. Similarly, borrowing funds locally will decrease

the company's vulnerability to exchange controls. Thus, highly leveraging a subsidiary with local debt can reduce an MNC's susceptibility to political risk. On the other hand, forcing a subsidiary to borrow funds locally to meet parent norms may be quite expensive in a country with a high-cost capital market. The cost-minimizing approach would be to allow subsidiaries in low-cost countries to exceed the parent company capitalization norm while subsidiaries in high-cost nations would have lower target debt/equity ratios. This assumes that capital markets are at least partially segmented. While there are no definite conclusions on this issue at present, the variety and degree of governmental restrictions on capital market access lend credence to the segmentation hypothesis. In addition, the behavior of MNCs in lobbying against regulations such as the OFDI restrictions indicates that they believe that capital costs vary significantly between countries.

A counterargument is that a subsidiary's financial structure should conform to local norms.¹⁸ Then, since German and Japanese firms are more highly leveraged, than say, companies in the U.S. and France, the Japanese and German subsidiaries of an American firm should have much higher debt/equity ratios than the U.S. parent or a French subsidiary. The problem with this argument, though, is that it ignores the strong linkage between U.S.-based multinationals and the U.S. capital market. Since most of their stock is owned and traded in the U.S., it follows that the firm's target debt/equity ratio is dependent on U.S. shareholder's risk perceptions. Similar arguments hold for non-U.S.-based multinationals. More importantly, the level of foreign debt/equity ratios is usually determined by institutional factors which

have no bearing on foreign-based multinationals. For example, Japanese and German banks own much of the equity as well as the debt issue of local corporations. Combining the functions of stockholder and lender may reduce the perceived risk of default on loans to captive corporations and increase the desirability of substantial leverage. This would not apply to a wholly-owned subsidiary. However, a joint venture with a corporation tied into the local banking system may enable an MNC to lower its local cost of capital by leveraging itself, without a proportional increase in risk, to a degree that would be impossible otherwise.

The basic hypothesis that we have been proposing in this section is that a subsidiary's capital structure is relevant only insofar as it affects the parent's consolidated worldwide debt ratio. Despite the logic of this argument, some companies still follow a policy of not providing additional parent financing beyond the initial investment. Their rationale for this policy, which is to avoid "giving local management a crutch," can best be understood in the context of agency theory. By forcing foreign affiliates to stand on their own feet, the parent firm is tacitly admitting that its powers of surveillance over foreign affiliates are limited, due to physical and/or cultural distance. In effect, the parent is turning over some of its monitoring responsibilities to local financial institutions. At the same time, affiliate managers will presumably be working harder to improve local operations, thereby generating the internal cash flow that will help replace parent financing. The related issues of consolidation and parent company guarantees provide additional evidence that at least some MNCs believe that an affiliate's financial structure and its sources of funds are important in their own right. The next section explores these issues

at greater length.

Parent Company Guarantees and Consolidation

Multinational firms often are reluctant to explicitly guarantee the debt of their subsidiaries even when a more advantageous interest rate can be negotiated. Their assumption appears to be that non-guaranteed debt would not be included in the parent company's worldwide debt ratio, whereas guaranteed debt, as a contingent liability, would affect the parent's debt-raising capacity.

This assumption ignores certain realities. It is very unlikely that a parent company would allow a subsidiary to default on its debt, even if that debt were not guaranteed. In fact, a survey by Stobaugh [1970] showed that not one of a sample of twenty medium and large multinationals (average foreign sales of \$200 million and \$1 billion annually, respectively) would allow their subsidiaries to default on debt which did not have a parent company guarantee. Of the small multinationals interviewed (average annual sales of \$50 million), only one out of seventeen indicated that it would allow a subsidiary to default on its obligations under some circumstances. A survey by Business International [1979] had similar findings. The majority of firms interviewed said they would make good the non-guaranteed debt of a subsidiary that defaulted on its borrowings. It is reasonable, therefore, to assume that the multinationals feel a "moral" obligation, for very practical reasons, to implicitly, if not explicitly, guarantee lower subsidiary borrowing costs, it will usually be in the parent's best interest to issue such a guarantee, provided that the parent is actually committed to making good on its subsidiaries' debt.

It is likely that the market has already incorporated this practical

commitment in its estimate of the parent's worldwide debt capacity. An overseas creditor, on the other hand, may not be as certain regarding the firm's intentions. The fact that the parent doesn't guarantee its subsidiaries' debt may convey the information that under certain circumstances the parent will choose to walk away from its subsidiary.

The existence of agency costs can also affect corporate policy regarding parent guarantees. When a firm provides an affiliate with a loan guarantee, "you lose the bank as your partner in controls" (Robbins and Stobaugh [1973, p. 67]). Since the bank will be repaid regardless of the affiliate's profitability, it will have less incentive to monitor the affiliate's activities. This could lead to greater agency costs. In the absence of a guarantee, the local bank will probably insist on inserting various complicating covenants in its loan agreement with the subsidiary. The parent can prevent these restrictive covenants and the resulting loss in operational and financial flexibility by supplying loan guarantees. The relative magnitudes of these agency costs will be a major determinant of whether the parent guarantees its affiliates' debts or not.

Related to this issue of parent-guaranteed debt is the belief among some firms that do not consolidate their foreign affiliates, that unconsolidated (and non-guaranteed) overseas debt need not affect the MNC's debt ratio. But unless investors and analysts can be fooled permanently, unconsolidated overseas leveraging would not allow a firm to lower its cost of capital below the cost of capital for an identical firm which consolidated its foreign affiliates. Any overseas debt offering large enough to materially affect a firm's degree of leverage would very quickly come to the attention of financial analysts.

Some evidence of this form of market efficiency was provided through talks with bond raters at Moody's and Standard and Poor's. Individuals from both agencies stated that they would closely examine situations where non-guaranteed debt issued by unconsolidated foreign affiliates would noticeably affect a firm's worldwide debt/equity ratio. In addition, parent company guaranteed debt is included in bond rater analyses of a firm's contingent liabilities, whether this debt is consolidated or not. Thus, it appears that the growing financial sophistication of MNCs has been paralleled by increased sophistication among rating agencies and investors.

Joint Ventures

Since many MNCs participate in joint ventures, either by choice or necessity, establishing an appropriate financing mix for this form of investment is an important consideration. Our previous assumption that affiliate debt is equivalent to parent debt in terms of its impact of perceived default risk may no longer be valid. This assumption was based on the increased risk of financial distress associated with more highly leveraged firms. However, in countries such as Japan and Germany, increased leverage will not necessarily lead to increased financial risks due to the close relationship between the local banks and corporations. Thus, debt raised by a joint venture in Japan, for example, may not be equivalent to parent-raised debt in terms of its impact on default risk. The assessment of the effects of leverage in joint venture is a judgmental factor which requires an analysis of the partner's ties with the local financial community, particularly with the local banks.

Unless the joint venture can be isolated from its partners'

operations, there are likely to be some significant agency problems associated with this form of ownership. Transfer pricing, establishment of royalty and licensing fees, and allocation of production and markets among plants are just some of the areas in which each owner has an incentive to engage in activities that will harm its partners. This probably explains why bringing in outside equity participants is generally such an unstable form of external financing. In recognition of their lack of complete control over a joint venture's decisions and its profits, most MNCs will, at most, guarantee joint venture loans in proportion to their share of ownership.

VII. SUMMARY AND CONCLUSIONS

In this paper, we have attempted to provide a framework for multinational firms to use in arranging their global financing. We have broken down the international aspects of the problem into three subproblems: minimizing taxes, minimizing risks, and exploiting market distortions. The first two of these rely on passive considerations in that they do not rely on any superior forecasting skills, whereas the third may or may not have an active component. In either case, these subproblems are largely separate. Tax minimization typically can be pursued without altering the currency risk position of the firm. Overall risk minimization can be carried out without any special information about capital market opportunities. Once the firm has established its desired passive position, it then can decide by how much it is willing to alter its risk exposures to exploit perceived bargains. Arbitrage opportunities, of course, are simple to deal with since they have no overall risk implications.

Following this discussion, we described how the solutions of each of the three subproblems interact with the firm's choices of overall financial structure. Clearly, parent and affiliate structures must be allowed to differ if the firm is to exploit the special opportunities of being multinational. However, it may wish to constrain the extent to which it distorts the financing of a particular entity because of undesired behavioral impacts on local managers, or in the case of joint ventures, conflicts with local shareholders.

Footnotes

1. For a review of early studies in this area see Naumann-Etienne [1974]. More recently, Shapiro [1975] has examined the impact of taxes on financial choices, Remmers [1980] has extended Shapiro's work to include uncertainty, Dufey and Giddy [1978] have emphasized the implications of efficient international financial markets for financing choices.
2. These include Ness [1972] who incorporates various financial constraints in a cost-minimizing linear program, Schydrowsky (in Robbins and Stobaugh [1973]) who develops a similar model, Lietaer [1971] who incorporates uncertainty in a quadratic programming model but does not address taxes, and most recently Kornbluth [1981] who stresses system versus local country capital structures but whose treatment of currency expectations is highly simplified. Several commercial models have been developed, but most have fallen into disuse.
3. This breakdown of the problem follows Lessard [1979b], pp. 349-351.
4. In this paper we ignore the more complex issues of valuation in a multicurrency, multicountry environment where different investors may display different currency preferences. We believe that this is not a serious problem since investors can readily offset the currency component of a firm's equity returns in their own portfolios as long as they know what that component is. This view outlined in Lessard and Stulz [1982] contradicts the position taken by Wihlborg [1980].
5. Adler and Dumas [1977] employ a similar objective function.
6. Major contributions to the evolving discussion of currency risk

premiums include Solnik [1978], Frankel [1979], and Stulz [1981].

7. See Levi [1977] for a discussion of the simultaneous arbitrage opportunities for investors of two countries that arise when interest and currency movements receive differential tax treatment in each country.
8. See Lessard [1979a] for an overview of the role of internal financial transactions. Horst [1977] and Adler [1979] provide more in-depth analyses on the impact of inter-affiliate financial structures on taxes.
9. See references in note 6 above.
10. For a discussion of how these financial incentives should be incorporated in project analyses see Lessard [1981].
11. See "Massey Ferguson's No-Risk Tractor Deal," Business International Money Report, February 3, 1978, pp. 35-36.
12. See, for example, "Diversifying Sources of Financing," Business International Money Report, September 23, 1977, pp. 297-298.
13. See, for example, "Why Japanese Firms Float Equity Abroad," Business International Money Report, February 11, 1977, pp. 44-45.
14. See, for example, Cohen [1972] and Rugman [1979].
15. Barnea, Haugen, and Senbet [1981] survey this literature. See also Fama [1981].
16. This point is made by Adler [1974] and Shapiro [1978].
17. "Policies of MNCs on Debt/Equity Mix," Business International Money Report, September 21, 1979, pp. 319-320.
18. See, for example, Stonehill and Stitzel [1969].

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