EVALUATING FINANCING COSTS FOR MULTINATIONAL SUBSIDIARIES

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Abstract. This paper presents a methodology for determining the true costs of alternative sources of financing for the multinational corporation when the risk of exchange rate changes is present and different tax rates and regulations are in effect. The cost formulas presented can then be used to calculate the cheapest financing source given the expected exchange rate changes.

INTRODUCTION

■ As multinational corporations expand their operations abroad, their need for overseas financing has increased accordingly. The fact that the subsidiary of a multinational corporation has access to funds from its sister subsidiaries as well as from its parent vastly increases the number of financing options available. A number of writers have examined the financial linkages in a multinational corporation. (See, for example [5], [6], [7], [8], and [11]. Rutenberg [11] analyzed in detail the tax consequences of the four primary means of shifting funds in a multinational corporation: adjusting transfer prices between subsidiaries; allocating overhead, royalties and managerial fees; making intracorporate loans including delaying invoicing; and adjusting dividend flows. Robbins and Stobaugh with the aid of Schydlowsky's computer model [8] and [9] investigated the financial practices used by a large sample of multinational firms.

The benefits of evaluating these financial linkages have increased in the past several years due to a sharp rise in interest rates world-wide as well as to the increased use of exchange rate adjustments by national governments. Rather than duplicating the work done by others on intracorporate funds shifting, this paper focuses on the costs associated with borrowing either from within or without the corporation when the risk of exchange rate changes is present and different tax rates and regulations are in effect. That this is not a trivial task is evident upon reviewing the available literature.

Zenoff and Zwick [13] and Robinson [10], for example, advocate the use of expected rates of inflation in evaluating alternative borrowing options. However, de Faro and Jucker correctly point out that the relative rate of inflation between any two countries is not a relevant decision parameter since "imported debt is repaid in inflated local currency, just as in local debt" [1, p. 103]. De Faro and Jucker, though, only consider the simple alternatives of a local currency loan vs. a dollar loan, whereas the range of borrowing options for a multinational corporation is far broader than that.

One of these options is a swap loan (defined further on in this paper) for which McMillan [4] has developed a cost evaluation formula. However, this formula, like the derivations of de Faro and Jucker, completely ignores the substantial impact that taxes can have on financing costs. Despite the serious omission, McMillan's formula has been reproduced intact in every major text dealing with international financial management including those written by Eiteman and Stonehill [2], Robinson [10], Weston and Sorges [12] and Zenoff and Zwick [13]. Furthermore, the cost equations developed by Schydlowsky [9] are sufficiently obscure as to be of little benefit to anyone seriously concerned with evaluating the costs of alternative borrowing sources.

This paper seeks to clarify these costs by presenting the case of a foreign subsidiary, call it subsidiary A, which requires x units of local currency (LC) to finance its working capital needs for the coming year. *After-tax dollar cost* equations are derived for the following five borrowing options:†

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† All of these deliberations leave out any consideration of what happens on the asset side when currency values change. These effects do have an impact on the choice of funding source if the firm is not risk neutral.

- Intracorporate loan
- Eurodollar loan
- Local currency loan
- Discounting bills
- Swap loan

The arbitrary choice of the dollar to denominate costs does not affect the firm's decision since lower dollar costs translate into lower costs in LC or any other currency. In addition, relative rates of inflation turn out to be irrelevant in choosing among alternative borrowing sources when one currency can be converted into another in the future at a given, albeit unknown, exchange rate. Comparative rates of inflation may help determine the future currency values but presumably this information is already incorporated in estimates of future exchange rates.

A CASE EXAMPLE

While the formulas developed below are general in nature, a case example will serve to illustrate their application.

At a current exchange rate of LC1 = $.25, LC 4,000,000 is required by subsidiary A to finance its working capital for the year.

The parent is willing to supply $1,000,000 to A at an interest rate of 10% which is also the parent's cost of borrowing. Interest on subsidiary A borrowings are tax deductible.

As an alternative source of dollars, a Eurodollar loan is available at 11% per annum. Its cost is tax deductible as well.

Given its anticipation of an LC devaluation, A is also considering local financing. A local currency loan is available at an annual cost of 20% while A can discount its receivables at a cost of 17%. These interest charges are also tax deductible.

The last option available to A is a swap transaction with a local bank. A could obtain LC 4,000,000 at a rate of LC1 = $.30 (a swap loan is defined further on in the paper). A would pay an interest rate of 10% on its LC borrowings but the parent would receive no interest on its dollar loan to the bank. The parent, however, would charge A 10% per annum payable in dollars on the funds loaned to the bank. This interest charge would not be tax deductible by A.

All exchange losses suffered by A are tax deductible. The effective tax rate on subsidiary A's earnings is 50% which is also assumed to be the U.S. tax rate. However, the parent company's effective tax rate on income from A is only 40% due to excess foreign tax credits available elsewhere.

As each cost formula is derived, it will be applied to the particular cost figures presented above.

INTRACORPORATE LOAN— LOAN TYPE #1

The first option examined is a dollar loan from the parent company. The dollar cost of this type of loan equals

$$C_1 = \underbrace{e_O x r_p(1-t_{us})}_{\text{parent's interest cost}} + \underbrace{e_O x r_{us}(1-t_A)}_{\text{subsidiary A's interest cost}} - \underbrace{e_O x r_{us}(1-t_p)}_{\text{parent's interest income}} - \underbrace{(e_O-e_1)xt_A}_{\text{tax gain or loss}}$$

where e_O = present $/LC exchange rate
e_1 = unknown year-end $/LC exchange rate
r_p = parent's annual cost of debt
r_{us} = interest charge payable, in dollars, by subsidiary A to the parent.
t_A = subsidiary A's effective tax rate
t_p = parent company's effective tax rate on income from A
t_{us} = parent company's tax rate on domestic-source income

The first term equals the parent's cost of providing e_Ox dollars to subsidiary A (e_Ox dollars = LCx). This cost is the parent's cost of debt rather than its cost of capital in order to ensure comparability with the cost of foreign debt. No matter how computed, the parent company's opportunity cost would very likely be substantially higher than local borrowing rates, leading to discrimination against parent company funds. The second term is the after-tax interest rate which A must pay to the parent. However, the interest cost to A is revenue to the parent and hence taxable as such, assuming no withholding tax.* This shows up in the third term. The tax rates t_A and t_p must be effective tax rates payable in both countries. The extensive system of foreign tax credits and tax treaties between countries means that t_A and t_p are usually not the stated tax rates. In particular t_p is probably not equal to t_{us}. It can be seen that if $t_A < t_p$, it is in the parent's best interest to charge the lowest rate the government involved will permit and vice-versa if $t_A > t_p$. The last term reflects the fact that the local currency cost of repaying the original dollar loan will change if $e_1 \neq e_O$ and will result in either an increase or decrease in local taxes. The new LC cost of repaying the loan equals $\frac{e_O x}{e_1}$. Since LCx was borrowed, the local currency differences in principal repayment cost equals $\frac{e_O x}{e_1} - x$. If an LC devaluation occurs, i.e., $e_1 < e_O$, this difference results in a foreign exchange loss which is tax deductible. This LC tax savings $(\frac{e_O x}{e_1} - x)\, t_A$ is converted into a dollar tax savings by multiplying through by e_1. Similarly, an LC revaluation will give subsidiary A a foreign exchange gain which is taxable, leading to an increase in taxes equaling $(e_1 - e_O)xt_A$ dollars. Hence, due to the tax effects, an LC devaluation will decrease the total cost of a dollar loan while an LC revaluation will increase them. Therefore, the *traditional view that dollar loans are not exposed (will not change value) in the event of a local currency exchange rate change is shown to be incorrect on an after-tax basis.*†

Using the example above, LC1 = \$.25 at the time that subsidiary A borrows \$1,000,000 from its parent at an interest rate of 10%. In addition, t_A and t_{us} equal .50 while t_p equals .40. If a 20% devaluation occurs while the loan is outstanding (LC1 now equals \$.20), LC 5,500,000 must be repaid instead of the anticipated LC 4,400,000. Interest plus exchange loss total LC 1,500,000 which is tax deductible providing a dollar savings at the new exchange rate of \$150,000. Since the interest rate paid by the parent was also 10%, its after-tax interest expense is \$50,000 while its after-tax interest revenue is \$60,000 since t_p is only .40. Hence, the total cost of the loan equals –\$60,000 leading to an effective rate of –6%. The total cost can be reduced by an additional \$1,000 for each 1% increase in r_{us} since $t_p - t_A = -.10$.

The same basic formula can be used if another subsidiary, subsidiary B, extends a loan to A denominated in B's local currency. The only difference would be in the tax rates used and the expected exchange rate changes.

The interest rate chosen on intracorporate fund transfers can be set with an eye to its tax implications. When credit is granted by adjusting the leads and lags in intracorporate payments no interest cost in dollars need be charged although governments tend to frown upon excessive changes in intracorporate credit terms.

Consolidating the terms containing $e_O x$ and $e_1 x$ leads to a new formula

$$e_O x\, [r_p(1-t_{us}) + r_{us}(t_p - t_A) - t_A] + e_1 x\, t_A.$$

Substituting the figures from the case presented above yields the dollar cost of the parent company loan: $-460{,}000 + 2{,}000{,}000\, e_1$.

EURODOLLAR LOAN–LOAN TYPE #2

The development of the Eurocurrency market is one of the most discussed financial innovations of the post-World War II period. It is the only truly international money market essentially undisturbed by any national rules or regulations. As such, it lends itself to widespread use by multinational corporations. The effective cost of a Eurodollar loan with an interest rate of r_E

$$\begin{array}{cccccc} & & \text{interest cost} & - & \text{tax gain or loss} \\ C_2 & = & e_O x r_E (1-t_A) & - & (e_O - e_1)xt_A \end{array}$$

As before, the first term is the after-tax interest cost while the second term is the dollar value of the local currency tax increase or decrease associated with the exchange rate change. The cost of any other Eurocurrency loan is computed in the same manner.

This formula reduces to

$$e_O x\, [r_E(1-t_A) - t_A] + e_1 x\, t_A.$$

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* If withholding tax is paid, the parent will receive $e_O x r_{us}$ less the withholding tax.

† Even when tax rates are the same, dollar loans are exposed in an opportunity cost sense.

Then the dollar cost of borrowing Eurodollars given the figures from the case equals $-445{,}000 + 2{,}000{,}000\, e_1$. It is clear based on these figures that the parent loan is always preferable to the Eurodollar loan, no matter what the future exchange rate will be.

LOCAL CURRENCY LOAN–LOAN TYPE #3

The third type of loan analyzed is a local currency loan. Many firms borrow locally to provide an offsetting liability for their exposed local currency assets. Invariably, though, the interest rate for borrowing in a soft currency (one likely to be devalued) is greater than the interest rate on a hard currency loan. According to Hoyt [5, pp. 17, 18], Singer Company's rule of thumb regarding local currency borrowing was, "if the exchange risk was high and the amount of receivables large in any country, efforts were made to borrow locally the total value of net receivables even though the interest rates incurred seemed exorbitant by American standards. If the exchange risk was low, it might be decided to borrow less in local currency thus avoiding high interest rates, and to finance the receivables with dollar or other hard currency loans, preferring to assume risk of some loss rather than incur continuing high interest expense." However, nearly a quarter of all firms surveyed by Robbins and Stobaugh do not even take into account the tradeoffs involved and "favor local borrowing regardless of interest-rate differentials" [7, p. 60].

The after-tax cost of borrowing locally equals the sum of the interest expense plus the exchange gain or loss. If r_L is the interest rate on a local currency loan, the total dollar cost is:

$$C_3 = \underbrace{e_1 x r_L (1-t_A)}_{\text{interest cost}} - \underbrace{(e_O - e_1)x}_{\text{exchange gain or loss}}$$

The first term is the after-tax dollar interest cost (paid at year-end when the exchange rate is e_1) while the second term is the gain or loss involved in repaying a local currency loan valued at $e_O x$ dollars with local currency valued at year-end at $e_1 x$ dollars. The gain or loss has no tax implications since LCx was borrowed and LCx repaid.

Separating the $e_O x$ and $e_1 x$ terms yields the revised formula

$$e_O x + e_1 x\, [r_L (1-t_A) + 1].$$

The dollar cost of borrowing locally then equals $-1{,}000{,}000 + 4{,}400{,}000\, e_1$.

DISCOUNTING BILLS–LOAN TYPE #4

Discounting bills is a very common short-term financing device in many countries including France, Belgium, Italy, Brazil and Argentina. It involves drawing a bill (an order to pay a certain amount of money to the bearer by some fixed time) on a customer and presenting it at a commercial bank. The discount is the margin between the face value of the bill and the ready money paid by the bank. If d is the discount rate, then a bill with face value LC $\frac{x}{1\text{-}d}$ must be presented to receive LCx. The total cost of discounting, then, equals:

$$C_4 = \underbrace{e_1 \frac{x}{1-d} d(1-t_A)}_{\text{discount cost}} - \underbrace{(e_O - e_1)x}_{\text{exchange gain or loss}}$$

The first term is the after-tax dollar cost of the discount paid and the second is the non-taxable exchange gain or loss on the principal. These two terms arise as follows: LC$\frac{x}{1-d}$ must be repaid at year-end for receiving LCx now. The principal repayment is x while the discount equals $\frac{xd}{1-d}$. $(x + \frac{xd}{1-d} = \frac{x}{1-d})$. The exchange rate at which repayment takes place is e_1. Hence, the discount cost which is tax deductible equals $e_1 \frac{xd}{1-d}(1-t_A)$ while the principal repayment cost is $e_1 x$. Since the dollar value of the original principal was $e_O x$, the effective dollar cost is as presented.

Another form of discounting which has grown in importance in Europe recently [13] is factoring receivables. Factors buy a company's receivables, with or without recourse, at a discount off the face value. Recourse refers to who bears the risks of customer default–without recourse means the factor assumes the risks and vice versa. The discount includes not only a pure interest charge but also costs of credit investigation and collection, as well as the costs of default if bought without recourse. In comparing factoring costs, then, with other types of loans, one must include only the pure interest part of the discount.

As before, a simpler cost formula is available:

$$-e_O x + e_1 x \frac{(1-dt_A)}{1-d}.$$

Substituting the figures from the case yields a dollar cost of $-1{,}000{,}000 + 4{,}409{,}000\,e_1$. It is obvious that whatever value e_1 takes on, the local currency loan is always cheaper, in this example, than discounting receivables.

SWAP LOAN—LOAN TYPE #5

A swap loan or credit swap is a particularly useful financing device in countries experiencing both dollar shortages and credit tightness. The demand for credit swaps has been very great, especially in Latin America. However, the volume of credit swaps fluctuates widely with changing government attitudes toward this device. For example, hundreds of millions of dollars were swapped each year with Brazil for periods of from six months to over five years. In 1967, though, the Brazilian government changed the conditions under which swapping could take place reducing the volume considerably.

A swap loan consists of the following elements: The parent company (or a subsidiary) grants a hard currency loan in its home country to a foreign bank (either the central bank or a private bank), and the foreign bank lends the countervalue in local currency at an agreed upon exchange rate to the subsidiary for a specified length of time. When the swap matures, the hard currency funds are returned simultaneously with repayment of the local currency loan.

The parties to the deal must agree on:

1. The exchange rate at which both transactions take place;
2. The length of time for the swap;
3. The interest rate charged to the subsidiary for the local currency loan. Usually, this rate is below the current rate of interest and certainly much below the total cost of credit in tight money markets. No interest is paid for the hard currency credit opened for the foreign bank.

Additional notation is required to calculate the dollar cost of a swap loan.

Let:

e_{s_O} = the \$/LC exchange rate at which the local currency loan takes place;

e_{s_1} = the \$/LC exchange rate at which repayment of the swap loan takes place;

r_s = interest rate on the local currency loan

The total after-tax dollar cost of the swap loan, then, equals:

$$C_5 = \underbrace{e_{s_O} x r_p (1-t_{us})}_{\text{parent's interest cost}} + \underbrace{e_1 x r_s (1-t_A)}_{\text{subsidiary A's interest cost}} - \underbrace{(e_O - e_1)x}_{\text{exchange gain}} + \underbrace{\frac{(e_{s_O} - e_{s_1})}{e_{s_1}} e_1 x}_{\text{swap conversion cost}}$$

As before, the first term equals the cost to the parent of providing a loan to the foreign bank. The second term is the after-tax interest cost of the LC loan granted the subsidiary. It is assumed that this interest is paid at year-end when the new exchange rate is e_1. The next term is the exchange gain recorded by the subsidiary in being able to repay a local currency loan originally worth e_O dollars with local currency now valued at $e_1 x$ dollars. The last term is the dollar cost of the additional local currency required for repayment of the dollar loan granted the foreign bank. This difference arises as follows: To borrow LCx, a deposit of $e_{s_O} x$ dollars was required. Upon maturity, however, the swap conversion rate is only e_{s_1}. Thus, an additional $\frac{e_{s_O} - e_{s_1}}{e_{s_1}} x$ units of local currency converted at the rate e_{s_1} are required to receive the original $e_{s_O} x$ dollar deposit back assuming that the bank will convert this additional quantity of LC at the rate e_{s_1}. This added cost on swap conversion may or may not be tax deductible.

If the bank only converts LCx at the exchange rate e_{s_1} the last term would be changed to $(e_{s_O} - e_{s_1})x$, the capital loss taken on the difference between the spot and forward rates in the swap.

If the parent charges the subsidiary interest on its loan to the bank, an additional cost equal to $e_{s_O} x r_{us} - e_{s_O} x r_{us}(1-t_P)$ is incurred. The first term is the subsidiary's interest cost which is generally not tax deductible since this money was not loan directly to the subsidiary. The second term is the parent's after-tax interest income.

Since the cost already includes a hedge premium, as do the higher interest rates on LC borrowings, an LC devaluation would have to occur before the swap loan would be cheaper than borrowing dollars or some other hard currencies. The extent of the required devaluation can be computed by finding the exchange rate e_1 at which C_1 or C_2 just equals C_5.

The swap cost formula reduces to

$$-e_O x + e_1 x\,[r_s(1-t_A) + 1] + e_{s_O} x\,[r_P(1-t_{us}) + r_{us}\,t_P].$$

Then the dollar cost of the swap loan at a given future exchange rate e_1 equals –892,000 + 4,200,000 e_1.

FORWARD CONTRACTS

It would be inappropriate to conclude this paper without discussing the role of forward contracts in financial decision-making. Firms often hedge their hard currency loans, by arranging forward contracts on the same maturities as the loans themselves. It can be shown that the decision to hedge via the forward market is independent of the borrowing decision when using an expected value criterion. The rule is: sell the local currency forward only if the anticipated exchange rate change is greater than the forward discount. A firm which wished to avoid the appearance of speculation would only use the forward market when it had hard currency commitments.* The expected cost criterion can be made more explicit by defining e_2 to be the forward rate on a contract of length n days. Then the annualized dollar cost of the forward contract per unit of LC equals:

$$\frac{360}{n}(e_1 - e_2)(1-t)$$

where t is the effective tax rate on forward contract gains or losses in the country in which the contract is sourced. The potential assymmetry in the taxes on gains or losses means that t may vary depending on whether e_1 is greater or less than e_2. For example, losses are commonly treated as a cost of doing business whereas gains may be taxable as capital gains depending on the maturity of the contract and the country involved.

The before-tax portion of this cost expression is derived as follows: LC1 is sold for e_2 dollars in the future. If the forward contract had not been entered into, the future value of this unit of currency would have been e_1 dollars. The dollar cost per unit of LC sold forward then is $e_1 - e_2$. Obviously, if e_1 is less than e_2, i.e. the currency devalued below e_2, a gain is recorded and vice versa if $e_1 > e_2$. This cost expression would be added on to the cost of a dollar loan whenever a forward contract, tied to this loan, was entered into.

An LC borrowing hedged through a forward sale against another currency, say the dollar, is precisely the same as borrowing dollars in the first place unless:

1. Due to controls or the threat of controls the annualized forward discount or premium does not offset the difference between the interest rate on the LC loan vs. the $ loan; or
2. Gains or losses on the forward contract are not treated just like increases or decreases in the interest expense of the underlying credit transaction.

ANALYSIS OF RESULTS

These cost formulas can be used to calculate the cheapest financing source for each future exchange rate. A computer can easily perform this analysis and determine the range of future exchange rates within which each particular financing option is cheapest.

It can readily be seen that only the cheapest of the local currency financing alternatives need be compared with cross-border alternatives. A decision between Loan Type 3 and Loan Type 4 can

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* A more appropriate definition of speculation would be all economic actions (or deliberate inactions) based on the expectation of a one-sided movement in the exchange rate between now and future points in time.

be made regardless of the exchange rate prevailing at period's end. If $r_1 > \frac{d}{1-d}$, then Loan Type 4 is cheapest and vice versa if the inequality is reversed. In addition, Type 1 and Type 2 loans can be compared without looking at the unknown future exchange rate, since the only term containing e_1, the tax gain or loss, is common to both. The Type 1 loan is cheapest if $r_E > \frac{r_p(1-t_{us}) + r_{us}(t_p-t_A)}{1-t_A}$ while the Type 2 loan is cheapest if this inequality is reversed. The swap loan must be analyzed separately.

In using the results of this analysis, a firm can determine how much currency appreciation or depreciation would be required before one loan is cheaper than another. This information can then serve as a benchmark for the treasurer against which to measure his own subjective feelings regarding the likelihood of a devaluation or revaluation of this extent.

Suppose, for example, the Loan Type 2 is the cheapest cross-border financing alternative while Loan Type 3 is the cheapest local currency loan. If the local currency is liable to devalue, then r_L will invariably be greater than r_E. The amount of local currency depreciation required to equalize the dollar costs of these loans can be found by setting the two formulas equal to each other and solving for e_1. In this case, the costs of the two loans are equal when $e_1 = e_O \frac{(1 + r_E)}{1+r_L}$.

Then the required amount of currency depreciation, $\frac{e_O-e_1}{e_O}$, equals $\frac{r_L-r_E}{1-r_L}$. This amount is approximately equal to r_L-r_E if r_L is not too large.

CASE SOLUTION

In the cost analysis presented above, it was shown that C_1 is always less than C_2 and C_3 is always less than C_4. Thus, the choice is between the parent company loan, local borrowing and a swap loan.

By equating C_1 and C_3, the breakeven value of e_1 is \$.225. As long as the local currency devalues by less than 10% $(\frac{.250 - .225}{.250})$, the parent company loan is cheaper than borrowing locally. A devaluation of more than 10% makes the local currency loan preferable.

To determine the relative benefits of the swap loan and local borrowing, equate C_3 with C_5. It turns out that as long as $e_1 < \$.54$, the local currency loan will always be cheaper than the swap loan.

Therefore, the appropriate borrowing sources can be narrowed down to two. If the exchange rate is expected to devalue by less than 10%, subsidiary A should borrow from its parent. If a devaluation greater than 10% is expected, subsidiary A should borrow locally.

SUMMARY

This paper has catalogued and compared several well-known multinational financing alternatives and their costs when exchange rates are likely to change. While not concerned directly with the financing decision in the multinational firm, the results presented here explicitly point out the sensitivity of these decisions to the different tax rates and regulations likely to be encountered in cross-border financing operations.

REFERENCES

1. deFaro, Clovis and James V. Jucker, "The Impact of Inflation and Devaluation on the Selection of an International Borrowing Source," *Journal of International Business Studies*, Vol. 4, No. 2 (Fall 1973), pp. 97-104.

2. Eiteman, David K. and Arthur I. Stonehill, *Multinational Business Finance*, Reading, Massachusetts: Addison-Wesley, 1973.

3. Hoyt, Newton H., Jr., "The Management of Currency Exchange Risk by the Singer Company," *Financial Management*, Vol. 1, No. 1 (Spring 1972), pp. 13-20.

4. McMillan, Claude, "The Swap as a Hedge in Foreign Exchange," *California Management Review*, Vol. 4, No. 4 (Summer 1962), pp. 57-65.

5. Ness, Walter N., "A Linear Programming Approach to Financing the Multinational Corporation," *Financial Management*, Vol. 1, No. 3 (Winter 1972), pp. 88-100.

6. Petty, J. William, II, and Ernest W. Walker, "Optimal Transfer Pricing for the Multinational Firm," *Financial Management*, Vol. 1, No. 3 (Winter 1972), pp. 74-87.

7. Robbins, Sidney M. and Robert B. Stobaugh, "Financing Foreign Affiliates," *Financial Management*, Vol. 1, No. 3 (Winter 1972), pp. 56-65.

8. ———— and ————, *Money in the Multinational Enterprise: A Study of Financial Policy*, New York: Basic Books, 1973.

9. __________ and __________, "Statistical Working Paper," December 1973.

10. Robinson, Richard D., *International Management*, New York: Holt, Rinehart and Winston, 1973.

11. Rutenberg, David P., "Maneuvering Liquid Assets in a Multinational Company: Formulation and Deterministic Solution Procedures," *Management Science*, Vol. 15, No. 10 (June 1970), pp. 671-684.

12. Weston, J. Fred, and Bart W. Sorge, *International Managerial Finance*, Homewood, Illinois: R. D. Irwin, 1972.

13. Zenoff, David B. and Jack Zwick, *International Financial Management*, Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1969.