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VARIABLE REINVESTMENT RATES, CONTROL TIMINGS, AND THE PROJECT EVALUATION PROCESS FOR MULTINATIONAL CORPORATIONS

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Abstract

This paper investigates the effect of currency controls on the profitability of multinational corporations and on the evaluation of international investment opportunities. Existence of an international tax differential and tax deferral privileges may not increase the value of the project. The net terminal value of a project will be significantly affected by the timings of the imposition and removal of the currency control. Controls may be removed prior to the terminal time period, during the terminal time period, after the terminal time period, or they may never be lifted at all. In the project evaluation process, where the exchange restrictions are not permanent, three segments of the time-period have been emphasized: the time segment prior to the imposition of currency control, the time segment during the currency control, and the time segment after the removal of the currency control. The major emphasis has been placed on the locations and timings of the reinvestments of the net cash flows. Exchange restrictions will generally lower the terminal value of the project. The net cash flows of the pre-currency control period may also get entrapped under the "currency control regime" during the reinvestment phase, which will further lower the terminal value of the project. The negative impact of currency control can be so pronounced that the project may yield a negative rate of return. However, there are two instances where currency control will NOT adversely affect the net terminal value of the project: (i) if the adjusted index for the collective value of the reinvestment rate of return in the host country is higher than that in the home country and when the controls are not permanent and (ii) if the host government provides full compensation to the firm for the revenue loss arising due to the imposition of control measures. There are numerous parameters involved in the project evaluation process, and whether a management team will produce a realized rate of return that will be at least as great as the expected rate of return will depend upon how accurately it can predict the future values of these parameters. Aside from the future net cash flow projection, the management's primary task during the project selection stage should be to estimate an index for the collective value of the investment and reinvestment rate of return.

INTRODUCTION

The gains from trade and business ventures are more substantial when one business partner totally lacks what another has to offer and vice-versa. Underdeveloped countries lack capital and technological know-how and are caught under the vicious cycle of poverty. They seek help from the developed countries. They attempt to attract multinational corporations by offering tax benefits, cheaper factors of production, and infrastructure facilities. Multinational corporations (MNCs), like other corporations, seek to maximize their short-term and long-term profits by reducing their costs and increasing their sales. The cost reduction is substantial if their businesses are expanded in underdeveloped economies due to the hospitable business environment provided by the host countries in the beginning. After some period of time, when the underdeveloped countries have acquired the technological know-how, they begin to discourage the multinational corporations by imposing various types of restrictions such as currency control, withdrawing all the previously granted amenities, and increasing profit taxes. Currency

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exchange restrictions are increasingly becoming popular among the underdeveloped countries. The underdeveloped countries with ill-conceived production policies, generally, end up accumulating heavy foreign debt and balance of payments deficits. Misguidedly, they attempt to solve their domestic economic problems by resorting to currency exchange restrictions which can take various forms. (For detailed discussions on the various forms of exchange rate restrictions, see [10, 14, 19-23].) The profits of the corporation (in part or in full) may not be allowed to be repatriated to its home country for a fairly long period of time either through exchange restrictions or simply by a decree from the host government. In exchange restrictions, the profits accrued to the firm in the host country's currency may not be allowed to be converted into its domestic currency until a specified period of time. Or, the profits may be allowed to be converted but only at a rate substantially below the market rate thus discouraging such repatriation of funds. For example, if the free market exchange rate between domestic currency (D) and the host country's currency (F) is 0.10 [that is, D1/F10], the host country may allow the conversion at a significantly unfavorable rate such as 0.008 [that is, D1/F125] for a specified period of time, and only later on it may allow the currency conversion at the free market determined rate. There are many countries where exchange restrictions could be imposed permanently with or without compensation to the firm. In the latter case, the firm has lost its future revenues from its foreign operation entirely. Generally, the multinational corporations have many other means (such as transfer pricing) through which they can repatriate a part of the blocked funds. Currency control, in theory, can be imposed at any time during the life of the firm's project. In practice, however, the first 8-10 years are virtually free of any such restrictions and, *de facto*, that can be referred to as the control-protected period. The exchange restrictions may be imposed after the control-protected time period and may be lifted prior to the terminal time period, during the terminal time period, or after the terminal time period. It is quite conceivable that the control may never be lifted, particularly in countries which have a history of violating international treaties.

Ironically, these exchange restrictions are self-defeating to the imposing countries as they restrict the free flow of trade and may create anxiety among potential foreign investors. The negative effects of currency control on the control-imposing countries could be devastating in the long-run when foreign investments begin to dwindle bit by bit and when they are unable to attract foreign capital at any cost.

The layout of the paper is as follows. Through numerical examples, section 2 demonstrates the negative effects of currency controls on a firm's profitability. This section is the foundation of the subsequent sections. Section 3 introduces the notation used for the theoretical model. Pre-control and post-control time segments are described in section 4. The effect of global tax differentials on cash flows are discussed in Section 5. In section 6, the values of the net cash flows under currency control are determined. The expected net terminal values are defined in section 7. Expected and realized rates of return are compared in section 8. Section 9 provides some concluding remarks.

LOSS RATES AND THE BREAKEVEN VALUES OF CONTROL PROBABILITIES: NUMERICAL RESULTS

This section provides some numerical examples and intuitive insights for the theoretical analyses of the subsequent sections. The time-dependent breakeven values of the control probabilities have been derived. These are the values for which a firm will be indifferent between a control-prone project and a control-free project; and these values heavily depend upon the duration and removal-timings of controls and the differential reinvestment rates between control-free and control-prone countries. The longer the control duration, the greater will be the loss rate of a multinational firm.

Suppose that an MNC is considering to invest funds worth $474.11 million (this figure is derived below) on a seven-year project. If it invests on a control-prone project in a foreign country (where exchange restrictions are imposed frequently), then it expects to earn $100 million per year in net profits for 7 years. If it invests on a domestic project or a foreign project that is control-free, then it expects to earn $95 million per year in net profits for 7 years. Both of the projects (control-prone and control-free) have zero salvage value. Suppose the currency controls are imposed at the end of period 3. Depending upon the removal times of these controls, four cases can be presented: (1) Controls are removed prior to the terminal time period, for example, period 6, (2) Controls are removed at the terminal time period 7, (3) Controls are removed after the terminal time period, for example, period 9, and (4) Controls become permanent without any compensation granted to the MNC. In the ensuing analysis, the figures are in millions of dollars:

The expected control-free reinvestment rates are given by:

$Y_0 = .09$, $Y_1 = .10$, $Y_2 = .11$, $Y_3 = .12$, $Y_4 = .13$, $Y_5 = .14$, $Y_6 = .15$, $Y_7 = .16$, $Y_8 = .17$

where Y_i represents the control-free reinvestment rate during period i (i = 1, 2, 3, ..., 8)

The expected control-prone reinvestment rates are given by:

$Y_{0p} = .02$, $Y_{1p} = .03$, $Y_{2p} = .04$, $Y_{3p} = .05$, $Y_{4p} = .06$, $Y_{5p} = .07$, $Y_{6p} = .08$, $Y_{7p} = .09$, $Y_{8p} = .10$

where Y_{ip} represents the control-prone reinvestment rate during period i (i = 1, 2, 3, ..., 8)

Case 0: If No Controls Are Imposed

If controls are not imposed, then the terminal value of the control-prone project at the end of period 7, V_{p7}, is given by:

$$\begin{aligned} V_{p7} &= [100 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 202.58851536] \\ &+ [100 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 184.1713776] \\ &+ [100 \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 165.92016] \\ &+ [100 \times (1.13) \times (1.14) \times (1.15) = 148.143] \\ &+ [100 \times (1.14) \times (1.15) = 131.1] \\ &+ [100 \times (1.15) = 115] \\ &+ [100] \end{aligned}$$

or,

$$V_{p7} = 202.58 + 184.17 + 165.92 + 148.14 + 131.1 + 115 + 100 = 1046.91$$

The present value of the terminal value of the ith cash flow, Xi (i = 1,2,3,..,7) is given by:

$$\begin{aligned} X1 &= 202.59 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 91.74 \\ X2 &= 184.17 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 83.40 \\ X3 &= 165.92 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 75.14 \\ X4 &= 148.14 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 67.09 \\ X5 &= 131.10 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 59.37 \\ X6 &= 115.00 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 52.08 \\ X7 &= 100.00 / ((1.09) \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15)) = 45.29 \end{aligned}$$

In the absence of controls, the aggregate present value, X_{p7}, of the periodic cash flows is given by:

$$X_{p7} = 91.74 + 83.40 + 75.14 + 67.09 + 59.37 + 52.08 + 45.29 = 474.11$$

In the absence of control, the rate of return, R_{p7}, is given by:

$$R_{p7} = (V_{p7} / X_{p7})^{(1/7)}) - 1 = ((1046.91 / 474.11)^{(1/7)}) - 1 = .1198$$

Case 1: Controls Are Imposed At Time 3 And Removed At Time 6

The terminal value of the control-prone project (when controls are imposed at time 3 and are removed at time 6) at the end of period 7, $V_{p7,6}$, is given by:

$$\begin{aligned} V_{p7,6} &= [100 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 202.58851536] \\ &+ [100 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 184.1713776] \\ &+ [100 \times (1.05) \times (1.06) \times (1.07) \times (1.15) = 136.95465] \\ &+ [100 \times (1.06) \times (1.07) \times (1.15) = 130.433] \end{aligned}$$

$+ [100 \times (1.07) \times (1.15) = 123.05]$
$+ [100 \times (1.15) = 115]$
$+ [100]$

or,

$$V_{p7,6} = 202.58 + 184.17 + 136.95 + 130.43 + 123.05 + 115 + 100 = 992.18$$

The rate of return, $R_{p7,6}$, can be defined as:

$$R_{p7,6} = (V_{p7,6} / X_{p7,6})^{(1/7)}) - 1 = ((992.18 / 474.11)^{(1/7)}) - 1 = .1113$$

Due to currency controls, the rate of return of the corporation has decreased. The loss rate (difference between the rates of return on the project when controls are not imposed and when controls are imposed with controls being lifted at period 6), $L_{p7,6}$, is given by:

$$L_{p7,6} = \text{Loss Rate} = R_{p7} - R_{p7,6} = .1198 - .1113 = .0085$$

Case 2: If Controls Are Imposed At Time 3 And Removed At Time 7

The terminal value of the control-prone project (when controls are imposed at time 3 and are removed at time 7) at the end of period 7, $V_{p7,7}$, is given by:

$V_{p7,7} = [100 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 202.58851536]$
$+ [100 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 184.1713776]$
$+ [100 \times (1.05) \times (1.06) \times (1.07) \times (1.08) = 128.61828]$
$+ [100 \times (1.06) \times (1.07) \times (1.08) = 122.4936]$
$+ [100 \times (1.07) \times (1.08) = 115.56]$
$+ [100 \times (1.08) = 108]$
$+ [100]$

or

$$V_{p7,7} = 202.58 + 184.17 + 128.61 + 122.49 + 115.56 + 108 + 100 = 961.41$$

The rate of return, $R_{p7,6}$, can be defined as:

$$R_{p7,7} = (V_{p7,7} / X_{p7,7})^{(1/7)}) - 1 = ((961.41 / 474.11)^{(1/7)}) - 1 = .1063$$

Due to currency controls, the rate of return of the corporation has decreased. The loss rate (difference between the rates of return on the project when controls are not imposed and when controls are imposed with controls being lifted at period 7), $L_{p7,7}$, is given by:

$$L_{p7,7} = \text{Loss Rate} = R_{p7} - R_{p7,7} = .1198 - .1063 = .0135$$

Case 3: If Controls Are Imposed At Time 3 And Removed At Time 9

Without Control:

The value of the control-prone project (when no controls are imposed) at the end of period 9, V_{p9}, is given by:

$V_9 = [100 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) \times (1.16) \times (1.17) = 274.953133047]$
$+ [100 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) \times (1.16) \times (1.17) = 249.957393679]$
$+ [100 \times (1.12) \times (1.13) \times (1.14) \times (1.15) \times (1.16) \times (1.17) = 225.186841152]$

+ [100 × (1.13) × (1.14) × (1.15) × (1.16) × (1.17) = 201.0596796]
+ [100 × (1.14) × (1.15) × (1.16) × (1.17) = 177.92892]
+ [100 × (1.15) × (1.16) × (1.17) = 156.078]
+ [100 × (1.16) × (1.17) = 135.72]

or

$V_9 = 274.95 + 249.96 + 225.19 + 201.06 + 177.93 + 156.08 + 135.72 = 1420.89$

The present value of the ith cash flow (accumulated at time 9) , Zi (i = 1,2,3,..,7) is given by:

Z1 = 274.95 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 91.74
Z2 = 249.96 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 83.40
Z3 = 225.19 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 75.14
Z4 = 201.16 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 67.09
Z5 = 177.93 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 59.37
Z6 = 156.08 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 52.08
Z7 = 135.72 / ((1.09) × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17)) = 45.29

The aggregate present value, Z_9, is given by:

$Z_9 = 91.74 + 83.40 + 75.14 + 67.09 + 59.37 + 52.08 + 45.29 = 474.11$

The rate of return, R_9, is given by:

$R_9 = (V_9 / Z_9)^{1/9} - 1 = ((1420.89 / 474.11)^{(1/9)}) - 1 = .1297$

With Control:

The value of the control-prone project (when controls are imposed at time 3 and are removed at time 6) at the end of period 9, $V_{p9,9}$, is given by:

$V_{p9,9}$ = [100 * (1.10) * (1.11) * (1.12) * (1.13) * (1.14) * (1.15) * (1.16) * (1.17) = 274.953133047]
+ [100 * (1.11) * (1.12) * (1.13) * (1.14) * (1.15) * (1.16) * (1.17) = 249.957393679]
+ [100 * (1.05) * (1.06) * (1.07) * (1.08) * (1.09) * (1.10) = 154.21331772]
+ [100 * (1.06) * (1.07) * (1.08) * (1.09) * (1.10) = 146.8698264]
+ [100 * (1.07) * (1.08) * (1.09) * (1.10) = 138.55644]
+ [100 * (1.08) * (1.09) * (1.10) = 129.492]
+ [100 * (1.09) * (1.10) = 119.9]

or

$V_{p9,9} = 274.95 + 249.96 + 154.21 + 146.87 + 138.56 + 129.49 + 119.9 = 1213.94$

The rate of return, $R_{p9,9}$, is given by:

$R_{p9,9} = (V_{p9,9} / Z_9)^{1/9} - 1 = ((1213.94 / 474.11)^{(1/9)}) - 1 = .1101$

Due to currency controls, the rate of return of the corporation has decreased. The loss rate (difference between the rates of return on the project when controls are not imposed and when controls are imposed with controls being lifted at period 9), $L_{p7,9}$, is given by:

$L_{p9,9}$ = Loss Rate = $R_9 - R_{p9,9} = .1297 - .1101 = .0196$

Case 4: If Controls Are Imposed At Time 3 And They Are Never Removed

The terminal value of the control-prone project (when controls are imposed at time 3 and become permanent thereafter) at the end of period 7, $V_{p7,\infty}$, is given by:

$$V_{p7,\infty} = [100 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 202.58851536] + [100 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 184.1713776]$$

or

$$V_{p7,\infty} = 202.58 + 184.17 = 386.75$$

The rate of return, $R_{p7,\infty}$, is given by::

$$R_{p7,\infty} = (V_{p7,\infty} / X_{p7,7})^{(1/7)} - 1 = ((386.75 / 474.11)^{(1/7)}) - 1 = -.0287$$

Due to currency controls, the rate of return of the corporation has decreased. The loss rate (difference between the rates of return on the project when controls are not imposed and when controls are imposed with controls becoming permanent), $L_{p7,\infty}$, is given by:

$$L_{p7,\infty} = \text{Loss Rate} = R_{p7} - R_{p7,\infty} = .1198 - (-.0287) = .1485$$

The loss rate is the highest when controls become permanent and the lowest when controls are lifted prior to the terminal time period, that is:

$$(L_{p7,6} = .0085) < (L_{p7,7} = .0135) < (L_{p9,9} = .0196) < (L_{p7,\infty} = .1485)$$

ALTERNATIVE PROJECT: CONTROL-FREE OR DOMESTIC PROJECT

The breakeven value of a control probability is a value for which an MNC will be indifferent between a control-free project and a control-prone project. The future values of control-free projects and control-prone projects can be used to determine the breakeven values of the control probabilities. The future values of the control-prone projects under four scenarios were derived in the previous section. This section determines the values of a control-free project at the end of periods 7 and 9 to derive the breakeven values of the control probabilities.

If the MNC invests $474.11 Million on a domestic project or a foreign project that is control-free, then it earns $95 million per year in net profits for 7 years. The terminal value of the control-free project at the end of period 7, V_{7f}, is given by:

$$V_{7f} = [95 \times (1.10) \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 192.46] + [95 \times (1.11) \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 174.96] + [95 \times (1.12) \times (1.13) \times (1.14) \times (1.15) = 157.62] + [95 \times (1.13) \times (1.14) \times (1.15) = 140.74] + [95 \times (1.14) \times (1.15) = 124.55] + [95 \times (1.15) = 109.25] + [95]$$

or,

$$V_{7f} = 192.46 + 174.96 + 157.62 + 140.74 + 124.55 + 109.25 + 95 = 994.58$$

The value of the control-free project at the end of period 9, V_{9f}, is given by:

V_{9f} = [95 × (1.10) × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17) = 261.21]
+ [95 × (1.11) × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17) = 237.46]
+ [95 × (1.12) × (1.13) × (1.14) × (1.15) × (1.16) × (1.17) = 213.93]
+ [95 × (1.13) × (1.14) × (1.15) × (1.16) × (1.17) = 191.01]
+ [95 × (1.14) × (1.15) × (1.16) × (1.17) = 169.03]
+ [95 × (1.15) × (1.16) × (1.17) = 148.27]
+ [95 × (1.16) × (1.17) = 128.93]

or

V_{9f} = 261.21 + 237.46 + 213.93 + 191.01 + 169.03 + 148.27 + 128.93 = 1349.84

BREAK-EVEN VALUE OF THE CURRENCY CONTROL PROBABILITIES

This section derives the breakeven values of the control probabilities for which a company will be indifferent between a control-prone project and a control-free project. If the actual probability of currency control exceeds the breakeven value, then the expected terminal value (and the implied rate of return) of the control-prone project will be lower than the expected terminal value (and the implied rate of return) of a control-free project; therefore, the latter project will be chosen over the former. If the actual probability of currency control is smaller than the breakeven value, then the expected terminal value (and the implied rate of return) of the control-prone project will be higher than the expected terminal value (and the implied rate of return) of a control-free project; therefore, the former project will be chosen over the latter. If the actual probability of currency control is equal to the breakeven value, then the expected terminal value (and the implied rate of return) of the control-prone project will be equal to the expected terminal value (and the implied rate of return) of a control-free project; therefore, the company will be indifferent between the two projects.

Case 1: Controls Are Lifted Prior To The Terminal Time Period, Such As Time 6

Under the efficient market hypothesis, the expected terminal value of the control-prone project must be equal to the expected terminal value of the control-free project:

$P_1(V_{p7,6}) + (1-P_1)(V_7) = V_{7f}$

or

$P_1(992.18) + (1-P_1)(1046.91) = 994.58$

where P_1 is the probability of currency control imposed at time 3 and removed at time 6. Solution of the above equation provides the breakeven value of the control probability, P_1^e, for which an MNC will be indifferent between a control-prone project and a control-free project:

$P_1^e = (1046.91-994.58) / (1046.91-992.18) = .9561$

If $P > P_1^e = .9561$, then:

$P_1(992.18) + (1 - P_1)(1046.91) < 994.58$

and the control-prone project will be rejected in favor of a control-free project due to the fact that the company's rates of return on the former project will be lower than the latter project.

If $P < P_1^e = .9561$, then:

$P_1(992.18) + (1-P_1)(1046.91) > 994.58$

and the control-prone project will be preferred over a control-free project due to the fact that the company's rates of return on the former project will be higher than the latter project.

If $P = P_1^e = .9561$, then:

$$P_1(992.18) + (1-P_1)(1046.91) = 994.58$$

and the company will be indifferent between a control-prone project and a control-free project.

Applying the above procedure (which has been used to derive the breakeven value of the control probability for case 1), the breakeven control probabilities for cases 2, 3, and 4 can be derived.

Case 2: Controls Are Lifted At The Terminal Time Period

For case 2, the expected terminal value of the control-prone project must be equal to the expected terminal value of the control-free project:

$$P_2(V_{p7,7}) + (1-P_2)(V_7) = V_{7f}$$

$$P_2(961.41) + (1-P_2)(1046.91) = 994.58$$

where P_2 is the probability of currency control imposed at time 3 and removed at time 7. Solution of the above equation provides the breakeven value of the control probability, P_2^e, for which an MNC will be indifferent between a control-prone project and a control-free project:

$$P_2^e = (1046.91-994.58) / (1046.91-961.41) = .6120$$

If $P > P_2^e$, then a control-free project will be chosen, while if $P < P_2^e$, then a control-prone project will be chosen.

Case 3: Controls Are Lifted After The Terminal Time Period, Such As Time 9

For case 3, the expected future value of the control-prone project must be equal to the expected terminal value of the control-free project:

$$P_3(V_{p9,9}) + (1-P_3)(V_9) = V_{9f}$$

$$P_3(1213.94) + (1-P_3)(1420.89) = 1349.84$$

where P_3 is the probability of currency control imposed at time 3 and removed at time 9. Solution of the above equation provides the breakeven value of the control probability, P_3^e, for which an MNC will be indifferent between a control-prone project and a control-free project:

$$P_3^e = (1420.89-1349.84) / (1420.89-1213.94) = .3433$$

If $P > P_3^e$, then a control-free project will be chosen, while if $P < P_3^e$, then a control-prone project will be chosen.

Case 4: Controls Become Permanent

For case 4, the expected terminal value of the control-prone project must be equal to the expected terminal value of the control-free project:

$$P_4(V_{p7,¥}) + (1-P_4)(V_7) = V_{7f}$$

$$P_4(386.75) + (1-P_4)(1046.91) = 994.58$$

where P_4 is the probability of currency control imposed at time 3 and is never removed. Solution of the above equation provides the breakeven value of the control probability, P_4^e, for which an MNC will be indifferent between a control-prone project and a control-free project:

P_4^e = (1046.91-994.58) / (1046.91-386.75) = .0793

If P > P_4^e, then a control-free project will be chosen, while if P < P_4^e, then a control-prone project will be chosen.

SYNTHESIS

This subsection combines the above four cases to determine a weighted average of the four breakeven values of the currency control probabilities. Let B_i represent the probability that control-type i will be imposed (i = 1, 2, 3, 4) and C represent the probability that the currency controls will not be imposed. Then

$B_1 + B_2 + B_3 + B_4 + C = 1$

or

$C = 1 - (B_1 + B_2 + B_3 + B_4)$

Let,

$B_1 = B$

$B_2 = .1B_1$

$B_3 = .05B_1$

$B_4 = .02B_1$

Since,

$B_1 + B_2 + B_3 + B_4 = B + .1B + .05B + .02B = (1.17)B$

therefore,

$C = 1 - (1.17)B$

Under the efficient market hypothesis, the combined expected terminal value of the control-prone project must be equal to the combined expected terminal value of the control-free project:

$$B_1(V_{p7,6}) + B_2(V_{p7,7}) + B_3(V_{p9,9}) + B_4(V_{p7,¥}) = [(1-B_3)/B_c](V_{7f}) + (B_{3c}/B_c)(V_{9f})$$

where, B_{3c} = .05 is the coefficient of B_3, B_c = 1.17 is the coefficient of the combined probability B, and $1-B_{3c}$ = 1.15 is the combined coefficients of B_1, B_2, and B_4. Substituting the future values for the four cases yields:

$B_1(992.18) + B_2(961.41) + B_3(1213.94) + B_4(386.75) + C(1046.91)$
$= (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

or,

$B(992.18) + .1B(961.41) + .05B(1213.94) + .02B(386.75) + [1-(1.17B)](1046.91)$
$= (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

or,

$B[(992.18) + .1(961.41) + .05(1213.94) + .02(386.75) - (1.17)(1046.91)] + (1046.91)$
$= (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

Solution of the above equation provides the breakeven value of the combined control probability, B^e, for which an MNC will be indifferent between a control-prone project and a control-free project:

B^e = Numerator/Denominator = [37.1479/68.1317] = .5452

Numerator = 1046.91 - ((1.12/1.17) × (994.58) + (.05/1.17) × (1349.84)) = 37.1479

Denominator = [(1.17) × (1046.91) - ((992.18) + (.1) × (961.41) + (.05)
× (1213.94) + (.02) × (386.75))] = 68.1317

If $B > B^e = .5452$, then:

$B_1(992.18) + B_2(961.41) + B_3(1213.94) + B_4(386.75) + C(1046.91)$
$< (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

and a control-prone project will be rejected in favor of a control-free project due to the fact that the company's rates of return on the former project will be lower than the latter project.

If $B < B^e = .5452$, then a control-prone project will be preferred over a control-free project due to the fact that the company's rates of return on the former project will be greater than the latter project:

$B_1(992.18) + B_2(961.41) + B_3(1213.94) + B_4(386.75) + C(1046.91)$
$> (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

If $B = B^e = .5452$, then the company will be indifferent between a control-prone project and a control-free project due to the fact that:

$B_1(992.18) + B_2(961.41) + B_3(1213.94) + B_4(386.75) + C(1046.91)$
$= (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$

THE ENTRAPPED PRE-CONTROL PROFITS

Suppose that the third year reinvestment rates in the control-prone country and control-free country are 0.120 and 0.125 respectively, while all other reinvestment rates of the previous section remain the same. To take advantage of the higher reinvestment rate, the firm decides to reinvest the pre-control profits of periods 1 and 2 in the foreign country. These reinvested profits will get entrapped during the control period and earn lower reinvestment rates. Based upon the control-removal timings, the following four cases correspond to the previous four cases. The variables belonging to the entrapped pre-control profit case are indicated by an asterisk. The terminal value of the project, rate of return, loss rate, and the breakeven values of the control probabilities are given by:

$V^*_{p7,6} = 928.98$; $R^*_{p7,6} = .1009$; $L^*_{p7,6} = .0189$; $P^{*e}_1 = .4437$

$V^*_{p7,7} = 878.54$; $R^*_{p7,7} = .0921$; $L^*_{p7,7} = .0277$; $P^{*e}_2 = .3108$

$V^*_{p9,9} = 1093.84$; $R^*_{p9,9} = .0973$; $L^*_{p9,9} = .0324$; $P^{*e}_3 = .2172$

$V^*_{p7,\infty} = 0$; $R^*_{p7,\infty} = -1.00$; $L^*_{p7,\infty} = 1.1198$; $P^{*e}_4 = .049985$

The loss rate is the highest when controls become permanent and the lowest when controls are lifted prior to the terminal time period, that is:

$(L^*_{p7,6} = .0189) < (L^*_{p7,7} = .0277) < (L^*_{p9,9} = .0324) < (L^*_{p7,\infty} = 1.1198)$

And it can be observed that the individual loss rates under the "entrapped-profit" case are greater than their corresponding loss rates under the "non-entrapped profit" case, that is:

$(L^*_{p7,6} = .0189) > (L_{p7,6} = .0085)$

$(L^*_{p7,7} = .0277) > (L_{p7,7} = .0135)$

$(L^*_{p9,9} = .0324) > (L_{p9,9} = .0196)$

$(L^*_{p7,\infty} = 1.1198) > (L_{p7,\infty} = .1485)$

$B^{*e} = 37.1479/68.1317 = .0847$

GLOBAL TERMINAL VALUES, RATES OF RETURN, LOSS RATES, AND CONTROL PROBABILITY BREAKEVEN VALUES: A COMBINED CASE

Since there is a likelihood for the pre-control cash flows to get entrapped during the control period, this subsection combines the values of the two scenarios (entrapped profit scenario and non-entrapped profit scenario). The combined variables will be referred to as the global variables. These global variables will be indicated by a superscript g. Let Q represent the probability that the pre-control cash flows will get entrapped in the host country, while 1-Q represent the probability that the pre-control cash flows will not get entrapped. Assume that Q = 0.50, then:

$V^g_{p7,6} = (1\text{-}Q)V_{p7,6} + QV^*_{p7,6} = .5*(992.18) + .5*(928.98) = 960.58$

$R^g_{p7,6} = (1\text{-}Q)R_{p7,6} + QR^*_{p7,6} = .5*(.1113) + .5*(.1009) = .1061$

$L^g_{p7,6} = (1\text{-}Q)L_{p7,6} + QL^*_{p7,6} = .5*(.0085) + .5*(.0189) = .0137$

$P^{ge}_1 = .6061$

$V^g_{p7,7} = (1\text{-}Q)V_{p7,7} + QV^*_{p7,7} = (.5)*(961.41) + (.5)*(878.54) = 919.975$

$R^g_{p7,7} = (1\text{-}Q)R_{p7,7} + QR^*_{p7,7} = (.5)*(.1063) + (.5)*(.0921) = .0992$

$L^g_{p7,7} = (1\text{-}Q)L_{p7,7} + QL^*_{p7,7} = (.5)*(.0135) + (.5)*(.0277) = .0206$

$P^{ge}_2 = (1046.91\text{-}994.58)/(1046.91\text{-}919.975) = .4123$

$V^g_{p9,9} = (1\text{-}Q)V_{p9,9} + QV^*_{p9,9} = (.5)*(1213.94) + (.5)*(1093.84) = 1153.89$

$R^g_{p9,9} = (1\text{-}Q)R_{p9,9} + QR^*_{p9,9} = (.5)*(.1101) + (.5)*(.0973) = .1037$

$L^g_{p9,9} = (1\text{-}Q)L_{p9,9} + QL^*_{p9,9} = (.5)*(.0196) + (.5)*(.0973) = .05845$

$P^{ge}_3 = (1420.89\text{-}1349.84)/(1420.89\text{-}1153.89) = .2661$

$V^g_{p7,\infty} = (1\text{-}Q)V_{p7,\infty} + QV^*_{p7,\infty} = (.5)*(386.75) + (.5)*(0) = 193.375$

$R^g_{p7,\infty} = (1\text{-}Q)R_{p7,\infty} + QR^*_{p7,\infty} = (.5)*(-.0287) + (.5)*(-1) = -.51435$

$L^g_{p7,\infty} = (1\text{-}Q)L_{p7,\infty} + QL^*_{p7,\infty} = (.5)*(.1485) + (.5)*(1.1198) = .63415$

$P^{ge}_4 = (1046.91\text{-}994.58)/(1046.91\text{-}193.375) = .0613$

Under the efficient market hypothesis, the combined expected terminal value of the control-prone project must be equal to the combined expected terminal value of the control-free project:

$$B_1(V^g_{p7,6}) + B_2(V^g_{p7,7}) + B_3(V^g_{p9,9}) + B_4(V^g_{p7,\infty}) = [(1-B_3)/B_c](V_{7f}) + (B_{3c}/B_c)(V_{9f})$$

where, $B_{3c} = .05$ is the coefficient of B_3, $B_c = 1.17$ is the coefficient of the combined probability B, and $1-B_{3c} = 1.15$ is the combined coefficients of B_1, B_2, and B_4. Substituting the numerical values of the individual project values, yields:

$$B_1(960.58) + B_2(919.975) + B_3(1153.89) + B_4(193.375) + C(1046.91) = (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

or,

$$B(960.58) + .1B(919.975) + .05B(1153.89) + .02B(193.375) + [1-(1.17B)](1046.91) = (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

or,

$$B[(960.58) + .1(919.975) + .05(1153.89) + .02(193.375) - (1.17)(1046.91)] + (1046.91) = (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

Solution of the above equation provides the breakeven value of the combined control probability, B^{ge}, for which an MNC will be indifferent between the control-prone project and a control-free project:

$$B^{ge} = \text{Numerator/Denominator} = [37.1479/110.7452] = .3354$$

$$\text{Numerator} = 1046.91 - ((1.12/1.17) \times (994.58) + (.05/1.17) \times (1349.84)) = 37.1479$$

$$\text{Denominator} = [(1.17) \times (1046.91) - ((960.58) + (.1) \times (919.975) + (.05) \times (1153.89) + (.02) \times (193.375))] = 110.7452$$

If $B > B^{ge} = .3354$, then:

$$B_1(960.58) + B_2(919.975) + B_3(1153.89) + B_4(193.375) + C(1046.91) < (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

and a control-prone project will be rejected in favor of a control-free project due to the fact that the company's rates of return on the former project will be lower than the latter project.

If $B < B^{ge} = .3354$, then:

$$B_1(960.58) + B_2(919.975) + B_3(1153.89) + B_4(193.375) + C(1046.91) > (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

and a control-prone project will be preferred over a control-free project due to the fact that the company's rates of return on the former project will be greater than the latter project.

If $B = B^{ge} = .3354$, then:

$$B_1(960.58) + B_2(919.975) + B_3(1153.89) + B_4(193.375) + C(1046.91) = (1.12/1.17)(994.58) + (.05/1.17)(1349.84)$$

and the company will be indifferent between a control-prone project and a control-free project.

COMPARISON OF THE THREE SCENARIOS: ENTRAPPED, NON-ENTRAPPED, AND GLOBAL

The following tables (Tables 1-3) present the results of the three scenarios presented above: (1) Table 1 corresponds to the case where pre-control period profits are not entrapped in the control-imposing country, (2) Table 2 corresponds to the case where the pre-control period profits get entrapped in the control-imposing country, and (3) Table 3 presents the combined case of the first two possibilities. Under the three scenarios, the loss rate and the duration of the currency control appear to have positive relationship. An increase (decrease) in the duration increases (decreases) the loss rate. The breakeven value of the control probability is negatively related with the duration of the currency control. An increase in the duration decreases the breakeven value of the control probability and vice versa. The reason being that with longer duration, there is a greater possibility of loss. For example, if the controls are expected to be permanent (Case 4), then even a small chance of currency control will make a control-prone project inferior to a control-free project. The weighted average breakeven value of the control probability is the highest for Scenario 1 and the lowest for Scenario 2. Being the average of the two, the weighted average breakeven value for Scenario 3 is smaller than its counterpart in Scenario 1 and greater than its counterpart in Scenario 2. A similar remark applies with respect to the individual breakeven values under four cases (and within the framework of the three scenarios). By the same token, the loss rates for Scenario 3 lies between the loss rates of Scenario 1 and Scenario 2. The loss rate under Scenario 1 is the lowest and under Scenario 2 the highest. In all the three scenarios (entrapped, non-entrapped, and global), the control-prone project's future values and rates of return appear to bear negative relationship with the control duration. The longer the duration, the lower are the values of the project's future value and rate of return. The evaluation period is 9 for Case 3 and 7 for Cases 1, 2, and 4. In Case 3, the higher figures appear only because, the evaluation time is 9 instead of 7. When adjustments are made for the extra two periods, Case 3 produces the lowest values of the project's future value and the rate of return than Cases 1 and 2.

TABLE 1
(Scenario 1)
Pre-Control Period Profits Are Not Entrapped

	Case 1	Case 2	Case 3	Case 4
Future Value ($ million)	992.18	961.41	1213.94	386.75
Rate Of Return	0.1113	0.1063	0.1101	-0.0287
Loss Rate	0.0085	0.0135	0.0196	0.1485
Breakeven Value Of P	0.9561	0.6120	0.3433	0.0793

Weighted average of the Breakeven Value of the Control Probabilities = 0.5452

TABLE 2
(Scenario 2)
Entrapped Pre-Control Period Profits

	Case 1	Case 2	Case 3	Case 4
Future Value ($ million)	928.98	878.54	1093.84	0.0000
Rate Of Return	0.1009	0.0921	0.0973	-1.0000
Loss Rate	0.0189	0.0277	0.0324	1.1198
Breakeven Value Of P	0.4437	0.3108	0.2172	0.0499

Weighted average of the Breakeven Value of the Control Probabilities = 0.0847

TABLE 3
(Scenario 3)
Global Case

	Case 1	Case 2	Case 3	Case 4
Future Value ($ million)	960.58	919.98	1153.89	193.375
Rate Of Return	0.1061	0.0992	0.1037	-0.5144
Loss Rate	0.0137	0.0206	0.0585	0.6342
Breakeven Value Of P	0.6061	0.4123	0.2661	0.0613

Weighted average of the Breakeven Value of the Control Probabilities = 0.3354

NOTATION

In the ensuing analysis, the following notation will be used:

B_1 = The probability that exchange restrictions will be removed prior to the terminal time period [$k \leq n = T-\phi < T$].

B_2 = The probability that exchange restrictions will be removed at the end of the terminal time period [$k \leq n = T$].

B_3 = The probability that exchange restrictions will be removed after the terminal time period [$k \leq n = (T+f) > T$].

B_4 = The probability that exchange restrictions will never be removed [$k \leq n = \infty > T$].

C^e = Expected total cost of the project

C_1 = Total cost of the project at time T, if $k \leq n=T-\phi < T$.

C_2 = Total cost of the project at time T, if $k \leq n = T$.

C_3 = Total cost of the project at time T, if $k \leq n = (T+\phi) > T$.

C_4 = Total cost of the project at time T, if $k \leq n = \infty > T$.

C^e = Expected total cost of the project (a weighted average of C_1, C_2, C_3, and C_4)

C_j = Total cost of the project at time T (j = 1, 2, 3, 4). The total cost consists of the initial capital outlay along with its opportunity costs and the variable costs along with their opportunity costs in the global markets.

C_r = Realized total cost of the project

E_i = Exchange rate during period i (i = 1, 2, 3, ..., $T+\phi$), defined as the ratio of domestic currency and the currency of the control-imposing foreign country.

E_i^* = Exchange rate during period i (i = 1, 2, 3, ..., T+f), defined as the ratio of domestic currency and the currency of the other countries that do not impose currency control

(Country W). If the profits are reinvested in the home country, then $E_i^* = 1$. It will be assumed that the exchange rate between Country H and Country W is always unity.

e_{t+i} = Percentage change in the exchange rate between t+i-1 and t+i, $(E_{t+i} - E_{t+i-1})/E_{t+i-1}$

F_{t+i}^u = Unadjusted net cash flows at time t+i

F_{t+i} = Adjusted real aftertax net cash flow at time t+i

P_a = Probability that the cash flows of the pre-currency control period will be blocked in the host country if currency control is imposed.

P_d = Probability that $R_{k-1} > R_{k-1}^*$ such that the profits of the pre-currency control period (d = 1, 2, 3, ... k-1) are reinvested in the currency control-imposing country and these profits become subject to currency control during period k (d < k).

$P_d = (P_a)(P_k)$

P_k = Probability of currency control during period k (k = 1, 2, 3, ..., T)

P_{t+i} = Price index at time t+i for the corporate investors' purchases of goods and services

Q_i = Total variable cost of the project during period i (i = 1, 2, 3, ..., T)

R_i = Adjusted aftertax rate of return on the reinvested profits in the currency control-imposing country during period i (i =1, 2, 3, ..., n, ...T). This is an adjusted rate with respect to taxation, default-risk, flotation cost, loss of revenues due to other government regulations, and other pertinent factors.

R_i^* = The highest rate of return on the reinvested profits in the global financial markets during period i (i =1, 2, 3, ..., n, ...T). This is an adjusted rate with respect to taxation, default-risk, flotation cost, loss of revenues due to other government regulations, and other pertinent factors.

R_i^{e*} = Exchange Rate-Risk adjusted R_i^*

$R_i^{e*} = \text{Max}[R_i^{he}, R_i^{we}, R_i^{fe}]$

R_i^{fe} = Exchange Rate-Risk adjusted R_i^f

R_i^{he} = Exchange Rate-Risk adjusted R_i^h

R_i^{we} = Exchange Rate-Risk adjusted R_i^w

S^e = Expected rate of return from the project

S^r = Realized rate of return from the project

V_1 = Net Future Value of the project if the currency control is lifted before the terminal time period (i.e., $k \leq n=T-\phi < T$).

V_2 = Net Future Value of the project if the currency control is lifted at the end of the terminal time period (i.e., $k \leq n = T$).

V_3 = Net Future Value of the project if the currency control is lifted after the terminal time period (i.e., $k \leq n = (T + \phi) > T$).

V_4 = Net Future Value if the currency control is permanent (i.e., $k \leq n = \infty > T$).

V^e = Expected net terminal value of the project (a weighted average of V_1, V_2, V_3, and V_4)

V^r = Realized net terminal value of the project

Z = Initial Capital Outlay

Greek Symbols:

α_{t+i} = Percentage change in adjusted real aftertax net cash flows between t+i-1 and t+i, $(F^u_{t+i} - F^u_{t+i-1})/ F^u_{t+i-1}$

σ_{t+i} = Percentage change in the general price level between t+i-1 and t+i, $(P_{t+i} - P_{t+i-1})/P_{t+i-1}$

τ_{t+i} = Foreign tax rate on corporate profits while

τ^h_{t+i} = Domestic tax rates on corporate profits during period t+i (i = 1, 2, 3, ..., T).

TIME HORIZONS FOR THE CURRENCY CONTROL MEASURES

Let t be the current time period, t+i be the future time period, i-period in the future from the current time period t (i = 1, 2, 3, ..., T), and T be the terminal time period. For simplicity of notation in the text, t will be assumed to be zero after Section V. Assume that the exchange restrictions are imposed during period k (k = 1, 2, 3, ..., T). These restrictions may never be lifted or they may be removed at the end of period n (n = 2, 3, 4, ... T+ϕ; ϕ is a positive real number). Exchange restrictions can be imposed at any time. However, there are some control-protection time periods before which the host governments generally do not impose restrictions. With respect to the termination of exchange restrictions, four cases can be envisioned: (i) exchange restrictions can be removed prior to the terminal time period (n < T), (ii) exchange restrictions can be removed at terminal time period (n = T), (iii) exchange restrictions can remain in effect until T+ϕ, a time period beyond the terminal time period (n > T), and (iv) exchange restrictions are never removed ($n \rightarrow \infty$). F_{t+i} will represent the adjusted real aftertax net cash flow at time t+i (i = 1, 2, 3, ..., n). The discrete period time horizons and the adjusted real aftertax net cash flows, for these four cases, are illustrated in the following diagrams:

Case 1 ($k \leq n < T$):

t	t+1	t+2	t+3	. . .	t+k-1	t+k	t+k+1	t+k+2	. . .	t+n	. . .	t+T
0	F_{t+1}	F_{t+2}	F_{t+3}	. . .	F_{t+k-1}	F_{t+k}	F_{t+k+1}	F_{t+k+2}	. . .	F_{t+n}	. . .	F_{t+T}

Case 2 ($k \leq n = T$):

t	t+1	t+2	t+3	. . .	t+k-1	t+k	t+k+1	t+k+2	. . . . .	(t+T)=t+n
0	F_{t+1}	F_{t+2}	F_{t+3}	. . .	F_{t+k-1}	F_{t+k}	F_{t+k+1}	F_{t+k+2}	. . . . .	$F_{t+T}=F_{t+n}$

Case 3 ($k \leq n = (T+\infty) > T$):

t	t+1	t+2	t+3	. . .	t+k-1	t+k	t+k+1	t+k+2	. . .	t+T	. . .	(t+n)=t+T+ϕ
0	F_{t+1}	F_{t+2}	F_{t+3}	. . .	F_{t+k-1}	F_{t+k}	F_{t+k+1}	F_{t+k+2}	. . .	F_{t+T}	. . .	$F_{t+n}=F_{t+T+\phi}$

Case 4 ($k \leq n = \infty > T$):

t	t+1	t+2	t+3	. . .	t+k-1	t+k	t+k+1	t+k+2	. . .	t+T	. . .	t+n=t+∞
0	F_{t+1}	F_{t+2}	F_{t+3}	. . .	F_{t+k-1}	F_{t+k}	F_{t+k+1}	F_{t+k+2}	. . .	F_{t+T}	. . .	$F_{t+\infty}$

GLOBAL TAX DIFFERENTIALS AND THE MNCs' TAX LIABILITIES

There are many countries that may exempt multinational corporations from their taxation. In addition, these countries may agree to pay the domestic tax liability of the multinational corporations. Foreign affiliates of a US-based corporation pay the differential tax rate. As an example, if the foreign tax rate on corporate profits is 20%, while in the US it is 25%, then the affiliates will pay 20% taxes on their profits to the foreign government and 5% to the US government. If, however, the foreign tax rate is higher than the US tax rate, which generally is the case, then no additional credits are given to the parent company. If a foreign affiliate is treated as a branch of a US corporation, then its earnings are taxed in the year they are realized. If a foreign affiliate is considered a subsidiary of a US corporation, then the US tax payments on its earnings can be deferred until they are repatriated. (For a detailed discussion on global taxation issues, see [4, 8, 18, 29].) If the foreign branch of a multinational corporation is experiencing currency control, it may argue that since the profits are not repatriable during the control-period, the tax payments should be deferred until such controls are removed. To show the impact of currency control and to avoid deviation from the main theme of this paper, it will be assumed that, when allowed, the profits of each period are repatriated to the home country, and after payments of taxes, the company decides whether to reinvest the profits in the home country or in a foreign country. The corporations will grow over time and so will their tax liabilities. It would be in the interest of the corporation to honor its tax liabilities when they are due, while it is in a low tax bracket, rather than wait for a later time when it has moved into a higher tax bracket. However, if the corporation feels that its income will decline with time, then it may plan to take advantage of the tax-payment-deferral privileges. Many infant corporations have low profitability in the beginning, and in order to win the trust of their stockholders and potential creditors, they may show a higher profitability by exercising their tax-payment-deferral privileges. In the beginning, the multinational corporations are subjected to a lower tax rate, but with time they are subjected to an increasingly higher tax rate by the host countries. Therefore, it may be in the interest of the corporation to repatriate profits every year to take advantage of low tax rates. Let τ_{t+i} represent the foreign tax rate on corporate profits while τ^h_{t+i} represent the domestic tax rates on corporate profits both during period t+i (i = 1, 2, 3, ..., T). As long as $\tau_{t+i} < \tau^h_{t+i}$, the corporation will pay a maximum tax rate of τ^h_{t+i} of which it pays τ_{t+i} to the host government and $(\tau^h_{t+i} - \tau_{t+i})$ to the home government. If $\tau_{t+i} > \tau^h_{t+i}$, then the corporation pays a maximum of τ_{t+i} but only to the host government. Growth of the domestic economy generates a positive externality to the domestic corporations. One could envision many cases where it would be advisable for the corporation to pay taxes during period t+1 rather than during period t+2 even if the real tax liabilities remain the same during the two periods. Consider the following scenario in which prices are held constant:

$$\tau_{t+1} < \tau^h_{t+1} \text{ and } \tau^h_{t+2} < \tau_{t+2} = \tau^h_{t+1}$$

During period t+1, the total tax liability rate of the firm is τ^h_{t+1} of which $(\tau^h_{t+1} - \tau_{t+1})$ is received by the home government and τ_{t+1} is received by the foreign government. During period t+2, the total tax liability of the firm is still the same, since $\tau_{t+2} = \tau^h_{t+1}$; however, the entire tax payment is due to the foreign government. In the former case, the domestic economy will benefit creating positive spillover effects for the corporation, while in the latter case there may be little domestic spillover benefits. Therefore, it is in the interest of the corporation to pay taxes during period t+1.

A continuous increase in the price level is another reason why the corporations should consider paying taxes when they are due rather than defer their payments. Prices have been continuously increasing; very seldom do they fall. Inflation arbitrarily enhances the values of real profits. Since taxes are imposed upon nominal profits and not on real profits, it would be in the interest of the firm to pay taxes as they become due.

Exchange restrictions imposed by foreign governments force the corporations to defer the payments of their domestic tax liabilities. But as discussed in the previous two paragraphs, the deferral of tax payments may not be in

the interest of the corporation. In the absence of currency control, the adjusted real aftertax cash flows, F_{t+i} (i =1, 2, 3, ..., T), from investment in the foreign country is given by:

Equation 1

$$F_{t+i} = (1 - \tau_{t+i})\{1 - (\tau^{h}_{t+i} - \tau_{t+i})\}E_t F^{u}_{t+i} P_t^{-1} \prod_{j=1}^{i} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

[An analysis of the real aftertax net cash flows in the absence of currency control can be obtained from the author.]

REAL AFTERTAX NET CASH FLOWS UNDER CURRENCY CONTROL

As before, let k be the time period when currency control is imposed, and remains effective until time period n. The profits accruing to the firm during the currency control period (*k, k+1, k+2, ..., n-1*) will have to be reinvested in the host country; and the corporations are not at liberty to repatriate or reinvest their profits in the highest yielding ventures in the global markets. The first *k-1* cash flows will be identical to the cash flows of the previous section, where currency control was not in effect. However, the cash flows of the currency control period (*k, k+1, k+2, ..., n-1*) will, in general, assume different values. Depending upon the time period when exchange restrictions are removed, the ensuing analysis presents four cases of the sequences of the adjusted real aftertax net cash flows.

Case 1 ($k \leq n=T-\phi < T$):

In this case, there are three time segments: (i) the pre-currency control time segment, where *i = 1, 2, 3, ..., k-1*, (ii) the time segment for the duration of the currency control period, where *i = k, k+1, k+2, ..., n=T-ϕ*, and (iii) the time segment after the currency control period, where *i = T-ϕ+1, T-ϕ+2, T-ϕ+3, ..., T*.

(i) The sequence of cash flows for the pre-currency control period, F_{t+i} (*i = 1, 2, 3, ..., k-1*), can be represented as:

Equation 2

$$F_{t+i} = (1 - \tau_{t+i})\{1 - (\tau^{h}_{t+i} - \tau_{t+i})\}E_t F^{u}_{t+i} P_t^{-1} \prod_{j=1}^{i} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

(ii) The sequence of cash flows for the duration of the currency control period, F_{t+i} (*i = k, k+1, k+2, ..., n=T-ϕ*), can be represented as:

Equation 3a

$$F_{t+i} = (1 - \tau_{t+i})\{1 - (\tau^{h}_{t+T-\phi} - \tau_{t+i})\}E_t F^{u}_{t+i} P_t^{-1} \prod_{j=1}^{T-\phi} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

The value of the blocked funds of each period, which are made available when controls are lifted, at time *i*, F^{a}_{t+i} (i = k, k+1, k+2, ..., T), can be defined as:

Equation 3b

$$F^{a}_{t+i} = [(1 - \tau_{t+i})\{1-(\tau^{h}_{t+T-\phi} - \tau_{t+i})\}E_t F^{u}_{t+i} P_t^{-1} \prod_{j=1}^{T-\phi} \prod_{c=i+1}^{T-\phi} \{(1+\alpha_{t+j})(1+\sigma_{t+j})\,(1+e_{t+j})(1+R_{t+c})(1+R^{*}_{t+c})^{-1}\}]$$

Note the fact that the above equation for F^{a}_{t+i} contains the term, $(1+R_{t+c})$. The cash flows of the currency control period will not be available for repatriation until period n=T-ϕ, and these cash flows will be reinvested in the host country to earn a generally lower rate, R_{t+c} (c = k+1, k+2, k+3, ..., T-ϕ). To get the present value of these blocked funds at period i, they have to be discounted and hence the above equation contains the term, $(1+R^{*}_{t+c})^{-1}$. Also, during this period, the taxes are due to the host country's government during the year the profits are earned at the

rate, τ_{t+i}, while taxes are due to the home country's government (should the corporation decide to repatriate funds) at the end of period T-ϕ at the rate, $(\tau^{h}_{t+T-\phi} - \tau_{t+i})$.

(iii) The sequence of cash flows for the post-currency control period, F_{t+i} (i = T-ϕ+1, T-ϕ+2, T-ϕ+3, ..., T), can be represented as:

Equation 4

$$F_{t+i} = (1 - \tau_{t+i})\{1-(\tau^{h}_{t+i} - \tau_{t+i})\}E_tF^{u}_{t+i}P_t^{-1} \prod_{j=1}^{i} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

Case 2 ($k \leq n = T$):

In this case, there are two time segments: (i) the pre-currency control segment, where i = 1, 2, 3, ..., k-1, and (ii) time segment for the duration of the currency control period, where i = k, k+1, k+2, ..., T.

(i) The sequence of cash flows for the pre-currency control period, F_{t+i} (i = 1, 2, 3, ..., k-1), will be the same as in Case 1 and is given in equation (2) above.

(ii) The sequence of cash flows for the duration of the currency control period, F_{t+i} (i = k, k+1, k+2, ..., n=T), can be represented by:

Equation 5a

$$F_{t+i} = (1 - \tau_{t+i})\{1 - (\tau^{h}_{t+T} - \tau_{t+i})\}E_tF^{u}_{t+i}P_t^{-1} \prod_{j=1}^{T} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

The value of the blocked funds of each period, which are made available when controls are lifted, at time i, F^{a}_{t+i} (i = k, k+1, k+2, ..., T), can be defined as:

Equation 5b

$$F^{a}_{t+i} = [(1 - \tau_{t+i})\{1 - (\tau^{h}_{t+T} - \tau_{t+i})\}E_tF^{u}_{t+i}P_t^{-1} \prod_{j=1}^{T} \prod_{c=i+1}^{T} \{(1+\alpha_{t+j})(1+\sigma_{t+j})(1+e_{t+j})(1+R_{t+c})(1+R^{*}_{t+c})^{-1}\}]$$

The observation made with regard to equation (3b), where n = T-ϕ, can be applied for equation (5b) as well, where n=T.

Case 3 ($k \leq n = T+\phi > T$):

In this case also, there are still T number of cash flows and two time segments: (i) the pre-currency control segment, where i = 1, 2, 3, ..., k-1, and (ii) the time segment for the duration of the currency control period, where i = k, k+1, k+2, k+3, ...,T.

(i) The sequence of cash flows for the pre-currency control period, F_{t+i} (i = 1, 2, 3, ..., k-1), will be the same as in Case 1 and is given in equation (2) above.

(ii) The sequence of cash flows for the duration of the currency control period, F_{t+i} (i = k, k+1, k+2, ..., T), can be represented by:

Equation 6a

$$F_{t+i} = (1 - \tau_{t+i})\{1 - (\tau^{h}_{t+T+\phi} - \tau_{t+i})\}E_tF^{u}_{t+i}P_t^{-1} \prod_{j=1}^{T+\phi} (1+\alpha_{t+j})(1+e_{t+j})(1+\sigma_{t+j})^{-1}$$

The value of the blocked funds of each period, which are made available when controls are lifted, at time i, F^{a}_{t+i} (i = k, k+1, k+2, ..., T), can be written as:

Equation 6b

$$F^{a}_{t+i} = [(1 - \tau_{t+i})\{1 - (\tau^{h}_{t+T+\phi} - \tau_{t+i})\}E_t F^{u}_{t+i} P_t^{-1} \prod_{j=1}^{T+\phi} \prod_{c=i+1}^{T+\phi} \{(1+\alpha_{t+j})(1+\sigma_{t+j})(1+e_{t+j})(1+R_{t+c})(1+R^{*}_{t+c})^{-1}\}]$$

The observation made with regard to equation (3b), where n = T-ϕ, can be applied for equation (6b) as well, where n=T+ϕ.

Case 4 (k ≤ n = ∞ > T):

If the exchange restrictions are permanent and without compensation, then the profits of the firm beginning period k cannot be repatriated. The firm's only cash flows are of the first k-1 period. The sequence of cash flows for the pre-currency control period, F_{t+i} (i = 1, 2, 3, ..., k-1), will be the same as in the previous three cases and is given in equation (2) above.

SYNTHESIS OF THE FOUR CASES: THE EXPECTED NET TERMINAL VALUE

Combining all four cases, the expected net terminal value of the project (V^{e}) can be defined as:

Equation 7

$$V^{e} = B_1V_1 + B_2V_2 + B_3V_3 + B_4V_4$$

where, B_i is the probability of the occurrence of Case i (i = 1, 2, 3, 4). (The derivations of the V_{is} are available from the author.

Under the assumption that all of the four cases have positive probability of their occurrences, the net present value of the project (L) can be defined as:

Equation 8

$$L = V^{e}/k$$

The breakeven value of the probability, P_k^{l}, for which L = 0 can be defined as:

$P_k^{l} = X/Y$, where:

$$X = \sum_{i=1}^{T} \prod_{j=i+1}^{T} E_{j-1}E_j^{-1}F_i(1+R^{*}_j) \text{ and}$$

Equation 9

$$Y = P_a \sum_{i=1}^{k-1} \prod_{j=i+1}^{k} \prod_{c=k+1}^{T-\phi} \prod_{b=T-\phi+1}^{T} [E_{j-1}E_j^{-1}E_{b-1}E_b^{-1}F_i(1+R^{*}_j)(1+R^{*}_b)\{(1+R_c^{e^{*}}) - (1+R_c^{e})\}]$$

$$+ \sum_{i=k}^{T-\phi-1} \prod_{c=i+1}^{T-\phi} \prod_{b=T-\phi+1}^{T} [E_{b-1}E_b^{-1}F_i(1+R^{*}_b)\{(1+R_c^{e^{*}}) - (1+R_c^{e})\}]$$

$$+ P_a \sum_{i=1}^{k-1} \prod_{j=i+1}^{k} \prod_{c=k+1}^{T} [E_{j-1}E_j^{-1}E_TF_i(1+R^*_j)\{(1+R_c^{e^*}) - (1+R_c^e)\}]$$

$$+ \sum_{i=k}^{T} \prod_{c=i+1}^{T} [E_TF_i\{(1+R_c^{e^*}) - (1+R_c^e)\}]$$

$$+ P_a \sum_{i=1}^{k-1} \prod_{j=i+1}^{k} \prod_{c=k+1}^{T+\phi} [E_{j-1}E_j^{-1}E_{T+\phi}F_i(1+R^*_j)\{(1+R_c^{e^*}) - (1+R_c^e)\}]$$

$$+ \sum_{i=k}^{T+\phi} \prod_{c=i+1}^{T+\phi} [E_{T+\phi}F_i\{(1+R_c^{e^*}) - (1+R_c^e)\}]$$

$$+ \sum_{i=1}^{k-1} \prod_{j=i+1}^{T} E_{j-1}E_j^{-1}F_i(1+R^*_j)$$

$$+ \sum_{i=k}^{T} \prod_{j=i+1}^{T} E_{j-1}E_j^{-1}F_i(1+R^*_j)$$

Equation 10

$$L \gtreqless 0 \text{ as } P_k \lessgtr P_k^l$$

For $P_k = P_k^l$, the corporation will be indifferent between selecting the foreign project with associated currency control problems and the alternative project.

For $P_k < P_k^l$, the foreign project with currency control problems will be selected.

For $P_k > P_k^l$, the alternative project will be selected.

Furthermore,

Equation 11

$$\text{Sign}[(dV^e)/(dP_k)] = \text{Sign}[\sum_{c=1}^{T+\phi} (R_c^a - R_c^{a^*})] \gtreqless 0 \text{ as } R_c^a \gtreqless R_c^{a^*}$$

Note the fact that the sign of $[(dV^e)/(dP_k)]$ depends on the relative magnitudes of the two reinvestment rate indices, R_c^a and $R_c^{a^*}$, as was true in the case of $[(dV_1)/(dP_k)]$.

EXPECTED AND REALIZED RATES OF RETURN FROM THE PROJECT

The expected rate of return from the project (S^e) can be defined as:

$$S^e = \{[V^e/C^e]^{(1/T)}\} - 1$$

$$S^e \gtreqless 0 \text{ as } [V^e/C^e] \gtreqless 1$$

During the currency control period, the entrapped funds (profits) will have higher reinvestment opportunity costs (at the rate R^*_i; i = k, k+1, k+2, ..., n) than what they would be earning through reinvestments in the control-imposing country (at the rate R_i; i = k, k+1, k+2, ..., n). Thus the imposition of currency control raises the overall cost of the project. The rate of return could be positive, negative, or zero, depending upon the ratio of the net terminal value and the total cost of the project. If the total cost under currency control is more pronounced in relation to the net terminal value of the project, then the rate of return from the project will be negative. The longer the duration of the currency control period, the greater the chances that the realized rate of return would be negative. If the currency control period is longer prior to the terminal time period, then it would increase the value of the denominator of the expression for the rate of return (total cost of the project), and thereby lower the value of the rate of return. If the currency control period is longer past the terminal time period, then it would lower the value of the numerator of the expression for the rate of return, and once again thereby lower the value of the rate of return. Thus it is the length of the currency control period that lowers the value of the rate of return, and in many cases transforms it in to a negative number, regardless of whether the control period is longer prior to the terminal time period or if it is longer after the terminal time period. [Even though the reinvested profits may earn positive reinvestment rates (R_i) in the host country, these rates will be lower than the opportunity costs (R^*_i) and recall that for n > T, the net terminal value expressions are divided by the appropriate discount rates (which are higher) for the periods between T and n in order to get the net future value of the project at time T.] In the case where the currency control is permanent, the rate of return from the foreign project will definitely be negative.

Differentiating S^e with respect to P_k yields:

Equation 12

$$(dS^e)/(dP_k) = \beta X/(-Y)$$

Equation 13

$$\beta = (1/T)[V^e/C^e]^{(1/T)-1} > 0$$

The following observation can be made with regard to the sign of $(dS^e)/(dP_k)$:

$$\text{Sign}[(dS^e)/(dP_k)] = \text{Sign}\left[\sum_{c=1}^{T+\phi}(R_c^{\,a} - R_c^{\,a^*})\right] \gtreqless 0 \text{ as } R_c^{\,a} \gtreqless R_c^{\,a^*}$$

Recall that $R_c^{\,a}$ is an adjusted index for the collective values of the rates of returns on the reinvested profits in the host country between periods k and n. Similarly, $R_c^{\,a^*}$ is an adjusted index for the collective values of the rates of returns on the reinvested profits in the home country (or the highest yielding global reinvestment place) between periods k and n.

The effect of currency control on the expected rate of return from the project will depend upon the relative magnitude of these two rates of return indices ($R_c^{\,a}$ and $R_c^{\,a^*}$). If the adjusted rate of return index of the foreign country is greater than the adjusted rate of return index of the home country, then a temporary imposition of currency control will not lower the rate of return from the project. The reason is that if $R_c^{\,a} > R_c^{\,a^*}$, then the profits of each period (the pre-currency control period as well as the post-currency control period) will be reinvested in the foreign country rather than the home country even in the absence of currency control. It may have some psychological effect on the management and stockholders of the firm, which may alter their expectations regarding future events, and thus result in many negative side effects. If $R_c^{\,a} < R_c^{\,a^*}$, then an imposition of currency control will lower the rate of return from the project, since the company will be forced to reinvest its profits into the host country where the reinvestment rates are lower. However, it is unlikely that $R_c^{\,a} > R_c^{\,a^*}$ and there are greater chances that $R_c^{\,a^*} > R_c^{\,a}$, and, therefore, it can be safely concluded that an imposition of currency control will lower the overall rate of return from the project. Thus:

Equation 14

$$[(dS^e)/(dP_k)] = -Y < 0$$

It is quite possible that due to the threat of currency control by the host government, the private sector of the host country may attempt to attract foreign capital by offering a reinvestment rate of return that exceeds the highest global rate; in such a case, $[(dS^e)/(dP_k)] > 0$.

The breakeven value of the probability of currency control, P_k^e for which the overall rate of return will be zero is given by:

$$P_k^e = (X-C^e)/Y$$

and

$$S^e \underset{<}{\overset{>}{=}} 0 \text{ as } P_k \underset{>}{\overset{<}{=}} P_k^e$$

The project should be undertaken if $S^e \in (0, \infty)$
The project should not be undertaken if $S^e \in (-\infty, 0]$
The realized rate of return from the project (S^r) can be defined as:

$$S^r = \{[V^r/C^r]^{(1/T)}\} - 1$$

The breakeven value of the probability of currency control, P_k^r for which the overall expected rate of return will be realized is given by:

$$P_k^r = [X - \{(1+S_r)^T C^e\}] / Y$$

and

$$S^r \underset{<}{\overset{>}{=}} S^e \text{ as } P_k \underset{>}{\overset{<}{=}} P_k^e$$

The performance of a firm's management can be considered acceptable if $S^r \in (0, S^e)$. The performance of the management is at expectations if $S^r = S^e$. The management has shown an extraordinary performance if $S^r \in (S^e, \infty)$. The management is likely to be replaced if $S^r \in (-\infty, 0]$. However, before making a hasty decision on the management's fate, other economic and financial events must be taken into consideration. If the company's disastrous performance has been due to events that were beyond the control of the management team or that some of the calamities could not have been anticipated, then the management is likely to be given another chance. It is quite possible that the negative rate of return is simply due to other adverse government regulations.

CONCLUDING REMARKS

Uncertainties in the receipt of net cash flows from an overseas investment are increased by the possibility of foreign exchange restrictions. Most of the MNCs, today, are experiencing some form of exchange restrictions. This paper has attempted to pin-point the relevant variables involved in the project evaluation process. The management of an MNC facing currency control problems has to estimate the values of many unknown parameters while evaluating the profitability of a project. These variables include: various cash flows, reinvestment rates in the global market, reinvestment rates on projects of varying lengths, probabilities of the imposition and removal of currency controls, probabilities of the cash flows of the pre-currency control segment being entrapped under the currency control regime, future levels and structure of international taxation, variable costs in each period, future domestic and foreign inflation rates, fluctuations in exchanges rates, levels of the demand for the product, price

elasticity of demand for the product, possibility of compensation for the expected loss of earnings due to currency control, etc. The corporation must ask for a control-protection time period from the host government.

The net terminal value of the project will be significantly affected by the timings of the imposition and removal of currency control. The longer the currency control period, the greater is the effect of such controls on the terminal value of the project. Controls may be removed prior to the terminal time period, during the terminal time period, or after the terminal time period, or, they may never be lifted at all. In the project evaluation process, where the exchange restrictions are not permanent, three segments of the time-period were emphasized: the time segment prior to the imposition of currency control, the time segment during the currency control, and the time segment after the removal of the currency control. The major emphasis was placed on the location and timings of the reinvestments of the net cash flows. Exchange restrictions will generally lower the terminal value of the project. The net cash flows of the pre-currency control period may also get entrapped under the currency control regime during the reinvestment phase and thereby further lower the terminal value of the project. The corporation's losses are more pronounced when the controls are permanent and no compensation is provided for the loss of earnings. The negative impact of currency control can be so pronounced that the project may yield a negative rate of return. However, there are two instances where currency control will NOT adversely affect the net terminal value of the project: (i) if the adjusted index for the collective value of the reinvestment rate of return in the host country is higher than that of the home country when controls are not permanent and (ii) if the host government provides full compensation to the firm for the revenue loss arising due to the imposition of control measures. There are numerous parameters involved in the project evaluation process, and whether a management team will produce a realized rate of return that will be at least as great as the expected rate of return will depend upon how accurately it can predict the future values of these parameters. Aside from the future net cash flow projection, the management's primary task during the project selection stage should be to estimate an index for the collective value of the investment and reinvestment rate of return.

The management of a multinational corporation (facing currency control problems) has to estimate the values of many unknown parameters while evaluating the profitability of a project. These parameters include: probability of currency control, time-periods when currency control will be imposed and lifted, probability that the net cash flows of the pre-currency control period will get entrapped under the currency control regime, reinvestment rates, tax differentials, and exchange rates.

REFERENCES

[1] Baker, J.C. and L.J. Beardsley, "Multinational Companies' Use of Risk Evaluation and Profit Measurement for Capital Budgeting Decisions," ***Journal of Business and Finance***, Volume 5, Number 1, 1973, pp. 39.

[2] Bavishi, V., "Capital Budgeting Practices at Multinationals," ***Management Accounting***, August 1981, pp. 32-35.

[3] Bernhard, R.H., "Risk-Adjusted Values, Timing of Uncertainty Resolution, and the Measurement of Project Worth," ***Journal of Financial and Quantitative Analysis***, March 1984.

[4] Bischel, J.E. and R. Feinschreiber, ***Fundamentals of International Taxation***, Practicing Law Institute: New York, 1977.

[5] Buckley, Peter J. and Casson, Mark, ***Multinational Enterprises in the World Economy: Essays in Honor of John Dunning***, New Horizons in International Business Series. Aldershot, U.K.: Elgar, 1992.

[6] Clark, J.J., T. Hindelang, and R.E. Pritchard, ***Capital Budgeting: Planning and Control of Capital Expenditures***, Prentice-Hall: Englewood Cliffs, New Jersey, 1989.

[7] Cole, H.L. and English, W.B. "Two-Sided Expropriation and International Equity Contracts," ***Journal of International Economics*** 33(1-2), August 1992.

[8] Coopers & Lybrand, ***Tax Reform Act of 1986***, Coopers & Lybrand: Washington, D.C., 1986.

[9] Copeland, T.E. and J.F. Weston, ***Financial Theory and Corporate Policy***, Addison-Wesley Publishing: Reading, Massachusetts, 1988.

[10] Eitemen, D. and A Stonehill, ***Multinational Business Finance***, Fourth Edition, Addison-Wesley: Reading, Massachusetts, 1986.

[11] Gaddis, P., "Analyzing Overseas Investment," ***Harvard Business Review***, May-June 1966, pp. 115-122.

[12] Landefeld, J.S., Lawson, A.M., and Weinburg, D. B., "Rates of Return on Direct Investment," ***Survey of Current Business*** 72(8), August 1992, pp. 79-86.

[13] Lessard, D.R., "Evaluating Foreign Projects: An Adjusted Present Value Approach," reprinted in D.R. Lessard, ed., ***International Financial Management: Theory and Application***, Second Edition, John Wiley and Sons: New York, 1985.

[14] Levi, M., International Finance: ***Financial Management of the International Economy***, McGraw-Hill: New York, 1983.

[15] Murtha, T.P. "Credible Enticements: Can Host Governments Tailor Multinational Firms' Organizations to Suit National Objectives?" ***Journal of Economic Behavior and Organization*** 20(2), February 1993, pp. 171-86.

[16] Oblak, D.J. and R.J. Helm, Jr., "Survey and Analysis of Capital Budgeting Methods Used by Multinationals," ***Financial Management***, Winter 1981, pp. 37-41.

[17] Preston, Lee E. and Windsor, Duane, ***The Rules of the Game in the Global Economy: Policy Regimes for International Business,*** Norwell, Mass. and Dordrecht: Kluwer Academic, 1992.

[18] Price, Waterhouse, ***Guide to the New Tax Law***, Bantam Books: New York, 1986.

[19] Rodriguez, R.J. and E. Carter, ***International Financial Management***, Third Edition, Prentice-Hall: Englewood Cliffs, New Jersey, 1984.

[20] Shapiro, A.C., "Capital Budgeting for the Multinational Corporations," ***Financial Management***, Spring 1978, pp. 7-16.

[21] Shapiro, A.C., "International Capital Budgeting," ***Midland Journal of Corporate Finance***, Spring 1983, pp. 26-45.

[22] Shapiro, A.C., ***Multinational Financial Management***, Allyn and Bacon: Boston, Inc., 1991, pp. 593-598.

[23] Shapiro, A.C., "Currency Risk and Country Risk in International Banking," ***Journal of Finance***, July 1985.

[24] Stonehill, A. and L. Nathanson, "Capital Budgeting and the Multinational Corporation," ***California Management Review***, Summer 1968, pp. 39-54.

[25] Stanley, M. and S. Block, "A Survey of Multinational Capital Budgeting," ***Financial Review***, March 1984, pp. 36-54.

[26] Raff, H. "A Model of Expropriation with Asymmetric Information," ***Journal of International Economics***, 33(3-4), November 1992, pp. 245-65.

[27] Webb, D.C. "The Trade Off between Cash Flow and Net Present Value," ***Scandinavian Journal of Economics*** 95(1), 1993, pp. 65-75.

[28] Wendt, Henry, ***Global Embrace: Corporate Challenges in a Transnational World,*** New York: Harper Collins, Harper Business, 1993.

[29] ***The International Tax Journal***, Spring 1994 (and various other issues).