

WORKING CAPITAL MANAGEMENT IN MULTINATIONAL COMPANIES:  
AN INTEGRATED APPROACH

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The Need For An Integrated Approach

Financial executives in many multinational companies are obliged to make decisions relating to working capital, capital budgeting, and capital structure as though such decisions were somehow independent of each other. They know that these decisions are logically and operationally interdependent, but in practice they find it difficult to make these decisions in a coordinated fashion. It is difficult to coordinate capital structure, capital budgeting, and working capital decisions because until recently the tools did not exist to analyze an array of interrelated financial strategies. Instead financial executives had to limit their analysis to a stepwise suboptimization procedure, beginning perhaps with capital budgeting, passing from there to capital structure, and then deriving the implied working capital policy. This conceptual approach has glaring limitations, the most obvious being its implicit assumption that the firm's best investment opportunities are identified and enumerated in the capital budgeting cycle. In a stable, noninflationary economy, this assumption may be true; but in today's inflationary environment, at a given moment in time the firm's best investment opportunity may be to purchase raw material, or to make tactical changes in credit terms as a means of securing orders or gaining market share.

Step-by-step determination of financial policy therefore might not lead to the best choice possible: sound capital budgeting, capital structure, and working capital policies, when taken together,

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might not add up to the optimal financial policy for the firm. This is especially likely considering that working capital decisions are reevaluated almost daily, while capital budgeting and capital structure decisions are reevaluated less frequently.

The different decision horizons for working capital management versus capital budgeting or capital structure management seem natural and accepted enough to require no comment or explanation. Nevertheless it is worthwhile to consider the underlying reasons for the difference in horizons which convention and tradition have established. Short-term and long-term decisions were considered separate in the past not only because it was easier to evaluate them independently, but also because there was a more clear natural demarcation between them than there is today. There were at least three reasons for this natural demarcation. First, many decisions were definitely short-term or long-term in nature. Firms can buy and sell short-term financial instruments every day, but cannot decide one day to make a major capital expenditure or sell an issue of 30-year bonds, and abandon these projects a day later. Second, fixed assets routinely yielded more than current assets, and long-term liabilities routinely cost the firm more than short-term liabilities. Third, capital budgeting and capital structure decisions did not constrain to any important degree the firm's flexibility in setting working capital policy; long-term decisions and short-term decisions were, for practical purposes, independent.

How many of these reasons for preserving the traditional demarcation between short and long term financial policies are

still valid today? Only the first. For most of the last two years the short-term interest rate has been higher than the long-term interest rate. This means that portfolios of short-term financial instruments have outperformed portfolios composed of long-term bonds, equities, or plant and equipment. Therefore capital budgeting and capital structure decisions have indeed constrained the choice of working capital policies which a company might realistically adopt. Many firms which purchased fixed assets in the past two years would have obtained a higher return by leaving their cash balances in the short-term money market. Theory tells us that this state of affairs is exceptional and should be transitory; and executives who see their companies as going concerns would call it short-sighted to postpone capital investment projects given today's rate of inflation in construction costs. On the other hand, the recent history of interest rates is beyond dispute. Corporate treasurers who started two years ago to invest their cash flow in money market instruments would today be able to show a higher return on assets than many of their counterparts who invested in plant and equipment. Indeed, companies with strong cash positions are now buying factories and entire companies at prices well below current replacement cost.

The purpose of this line of reasoning is not to show that financial managers should view their companies as portfolios which they are running on behalf of shareholders who have high rates of time preference. The financial press has done that well enough already; in addition, the recent wave of takeovers and the fad of computing "breakup" value have brought the point home more mena-

ingly. The objective is simply to show that financial managers today must consider a much wider range of working capital policies than they had to in the past. The prudent range for the current ratio used to be from 4:1 to 1.5:1 or thereabouts. Now under certain circumstances it can be sensible and prudent to have a current ratio higher than 10:1 or lower than 1:1 for periods of a few months. Another question is the proper composition of current vs. fixed assets and short-term vs. long-term liabilities. In the past, companies did not gain any advantage by varying from industry norms. Today they might. And also, there is the question of the correct mix of current assets. How should companies decide what levels of inventory, receivables, and cash equivalents to hold? In a steady-state economy this mix should be stable. The duration of the manufacturing process and the average collection period should not vary. But in a volatile economy, companies should not expect this mix to remain stable; nor should they try to keep it stable; instead they should stand ready to vary the mix as opportunities arise.

#### The Multinational Context

Obviously, financial managers cannot give full consideration to the complete range of possible working capital policies in the domestic context. Their difficulties are greater in the multinational context. Financial managers have to consider foreign exchange risk, liquidity in various currencies, exchange controls, tax considerations in several jurisdictions, interest expense in local as well as home currency, etc. In this maelstrom of complexity they must try to make a series of working capital decisions

which will be optimal over time. A multinational company's working capital position is in constant flux: foreign exchange exposure arises; bank loans fall due, customers pay in local currency for goods shipped earlier, etc. Financial managers find it hard enough simply to react to these changes in current asset and liability balances. It is natural and entirely defensible that they should willingly forego some profit opportunities in order to be able to consider a manageable number and reach a decision. It is understandable that they should set standard operating procedures and rely on local autonomy in some matters. It is also sensible for them to make certain decisions one by one, as though the decisions were independent. They realize they are missing some opportunities, but they cannot evaluate as many as they would like.

Organizational barriers also block managers from evaluating opportunities which may have promise. This is particularly true in multinational companies, where tradition has created an artificial separation between international financial policies and domestic financial policies. Many multinationals have taken steps to combat this separation. Some have adopted matrix organizational structures, which broaden the experience individual managers receive; and most assign managers to a succession of different jobs to familiarize them with various facets of the business. In spite of these constructive steps, however, financial decisionmaking in most multinational companies is still more subdivided than unified. The organization of the finance function has evolved less rapidly than the global financial environment in which multinational companies operate. Division controllers, assistant treasurers, and other specialists perform their functions and pass reports to the chief

financial officer, who sets financial strategy with experience and judgement as his principal guides. In today's chaotic financial markets, however, experience is not a reliable guide, because trends and historical proportions have been disrupted. Top financial managers have had to make their own rough forecasts of key interrelationships. The reports they receive are useful, but often do not provide them with a succinct enumeration of promising alternative strategies and the data needed to choose among them.

### The Integrated Approach

This paper presents an approach to working capital policy-making which widens the range of alternatives that financial executives can reasonably evaluate. It scans for possible choices, and rejects the ones that are obviously inferior. It looks carefully at the choices that remain, and presents the best ones with comments on their advantages and risks.

The approach advocated here does not embody the conventional liquidity-versus-return tradeoff. This leitmotif of elementary single-country financial management does not survive the transition to the multi-country case without suffering some modification. Everybody has seen the textbook comparison between a firm with a high current ratio and a firm with a low current ratio.<sup>1</sup> The earnings of the former are low but stable, and the earnings of the latter are higher on average but volatile. The comparison between a firm with a low debt ratio and a firm with a high debt ratio comes out much the same. This is to be expected, because both comparisons illustrate the fundamental

risk-versus-return tradeoff. Textbooks equate an illiquid position, as evidenced by a low current ratio, with a high level of volatility or risk. Fadel and Parkinson have attacked the validity of this link for companies operating with a single country.<sup>2</sup> Their argument is that collections and payments are flows, whereas the current ratio compares two stocks. To their point we can add another: banks today are competing to sell cash management services. These services allow a company to sustain a given level of operations with less liquidity than the company needed before having the service. Thus in today's financial environment static measures of liquidity mean less than they used to, and the link between liquidity and risk is not as strong as it used to be. For a multinational, the link between liquidity and risk is weaker still. The multinational's consolidated balance sheet shows consolidated current assets and liabilities, so one can compute a company-wide current ratio or net working capital figure if one wishes. It is debatable whether such a figure would show anything useful. Multinationals above a certain size have bank relationships giving them automatic overdraft facilities in several currencies.<sup>3</sup> Moreover, aggressive banks are constantly offering them new lines of credit. For multinationals, therefore, liquidity per se is not an overriding day-to-day concern as it is for a small domestic company.

The key issues for working capital management in multinational companies are profitability, foreign exchange exposure, tax liability, and the volatility of consolidated earnings. For current asset and liability decisions, profitability can be viewed incrementally: purchases of inventory have to be financed;

the same holds for acquisition of receivables. If the return from holding these appears to exceed the cost of carrying them, subsidiaries will increase their holdings of each. It then becomes necessary for headquarters to offset any resulting increase in foreign exchange exposure, and deal with any increase in the volatility of consolidated earnings. Headquarters can make offsetting transactions on a regular basis. Changes in tax posture cannot be made so easily. Again long-run strategy considerations spill over into the arena of short-run financial maneuvering. It is best to recognize the interactions between long-run decisions and short-run financial strategies. This paper advocates an approach using four sub-systems.

#### The Four Sub-System Approach

The range of possible financial strategies for a multinational company is too great for an individual to consider all at once. It is much easier to consider strategies for individual subsidiaries or for individual asset or liability items. Solving two sub-problems, however, does not necessarily lead to the best solution to the joint problem. Therefore to be sure of finding the best financial strategy for the multinational as a whole, it is necessary to find sub-strategies and then work from those to composite strategies, and then check the composite strategies against each other. To accomplish this, the multinational company would assign staff analysts to put together simple simulation models of the four sub-systems of the multinational's financial management process.<sup>4</sup> These are the domestic working capital



management sub-system, the international working capital management sub-system, the domestic capital budgeting and capital structure sub-system, and the international capital budgeting and capital structure sub-system. Each of these sub-systems would be simple simulation routines which would take input data concerning projects and economic conditions and print out probability estimates of cash flows and financing needs. Staff analysts would take these simulation results and construct pro forma balance sheets and income statements for the subsidiaries and for the company as a whole. Each complete simulation would give one composite strategy. To generate new composite strategies, the staff analysts would change the input data or change the probabilities within each simulation routine. After generating a series of composite strategies, the analysts would compare the results of the ones which look most promising, and assess the chances of achieving those results. They would then report their findings and recommendations to the chief financial officer.

To see how this four sub-system approach would work in practice, let's work through one iteration of the procedure. In practice the computer would do thousands of iterations in preparing each composite strategy, but to see how the various inputs would figure into computing the output, one iteration is sufficient.

It is easiest to begin with the domestic capital budgeting and capital structure sub-system. After calculating a trial solution to the domestic capital budgeting and capital structure

sub-system, we will have a figure for net cash flow from the long-term section of the domestic balance sheet to the short-term section. This is expressed as follows:

depreciation + net long-term funds raised -  
funds invested in fixed assets = contribution  
to or subtraction from net working capital.

To get a trial solution, we compare capital investment projects proposed with long-term financing available. Depreciation for the upcoming period is known. The results of this trial solution would be a list of capital investment projects accepted and financing opportunities accepted.

Next we move to the international capital budgeting and capital structure sub-system. We obtain a trial solution for each subsidiary. Capital investment projects and long-term financing opportunities are both profiled in local currency terms. The computer randomly selects beginning and ending exchange rates from the ranges specified. The trial solution gives capital investment projects and financing opportunities accepted for each subsidiary. It is possible, depending on the cash flow estimates used and the beginning and ending exchange rates selected, that no projects may be accepted for some subsidiaries. In any event, the results of the trial solution are passed on to the other sub-systems.

The domestic working capital sub-system takes as its input a range of sales forecasts, and also takes the figures from the two sub-systems discussed above. The computer randomly selects a sales figure from the range of sales forecasts which the

analysts have entered. Using this sales figure and the figure for cash flow to or from the long-term portion of the balance sheet, the computer forecasts trial figures for each current asset and liability item. These figures give a trail solution to the domestic working capital sub-system.

For the international working capital sub-system the computation proceeds in similar fashion. The computer selects at random a sales figure and an exchange rate for each country subsidiary from the range of sales and exchange rate forecasts which the analysts have entered. Figure 1 illustrates how this works for a multinational company which has one domestic and one foreign subsidiary. The computer forecasts trial figures for each current asset and liability item in the foreign subsidiary. It also computes a foreign exchange exposure figure.

After computing trial solutions for each of the sub-systems, the analysts prepare a pro forma consolidated balance sheet and a pro forma consolidated income statement for the period. Next they recompute new trial solutions to study the variance in the pro forma consolidated income for the period.

For multinational companies with more than one foreign subsidiary, it takes more computation to produce a trail solution to the international working capital sub-system. For each foreign subsidiary the computer has to select an exchange rate and a sales figure from the range of forecasts entered. Then the computer has to project current asset and liability line items for each foreign subsidiary, and convert them into units of the home currency. Then it has to add them together and print them out so that the analysts can work them into their

pro forma consolidated balance sheet and income statement. In addition, when there is more than one foreign subsidiary, the international working capital sub-system must permit inter-subsidiary loans, alterations in royalty payments, licensing fees, transfer prices, etc. For that reason there can be many possible trial solutions to the international working capital sub-system, each of which would be consistent with the input data from forecasts and from the other three sub-systems.

This paper does not advocate programming a complicated set of simulation routines. It will be enough to set up simulation routines which will answer a few key questions such as:

- Is there a set of events which will leave us with an unacceptable level of foreign exchange exposure?

- Is there a set of events which can place our consolidated debt ratio above an acceptable level?

- Is there a working capital policy which can improve our chances of showing foreign exchange gains?

### Summary and Conclusions

This paper argues that multinational companies should look for ways to broaden the range of financial strategies they can consider. Conditions in financial markets are chaotic, and for that reason strategies which traditionally were never considered might today be quite practical and successful. These include strategies in which a multinational company would intentionally reach very high or very low levels of liquidity. These also include strategies in which a multinational would intentionally take partially exposed positions in foreign exchange, in

interest rate risk, or in earnings volatility.

Many financial executives in multinational companies would like to be able to identify and study financial strategies outside the traditional range. They are stymied by the difficulty of evaluating large numbers of complex alternatives in a short time. Organizational constraints compel them to limit their choices to a tractable number and to delegate pieces of financial responsibility which they would rather keep within their direct control.

To help overcome these limitations, this paper proposes an integrated approach which links capital budgeting decisions, capital structure decisions, and domestic working capital decisions into international working capital decisions, to generate a series of composite strategies. This approach permits generating as many composite strategies as necessary to find a few with desirable characteristics, and it permits comparing them for their probable effects on consolidated earnings, foreign exchange exposure, and tax liability. It permits interrelating finance functions and decisions which have traditionally been kept separate: credit management, inventory investment, capital structure, and international treasury.

To compute the various interrelationships which figure into the composite strategies, this paper recommends a computerized simulation technique, involving four sub-systems. The four sub-systems cover (1) domestic capital budgeting and capital structure; (2) international capital budgeting and capital structure; (3) domestic working capital; and (4) international working capital. To generate a composite strategy, the computer generates

a trial solution to each of the four sub-systems. Staff analysts then check how these trial solutions would look when taken together in the consolidated balance sheet and income statement for the company as a whole. By generating one composite strategy after another, staff analysts can consider a very broad range of integrated financial policies, particularly focusing on international working capital management. Their analysis can be much more exhaustive and rewarding than an investigation relying on unsystematic contemplation of interrelationships. Simulation technique requires specifying linkages and probability distributions. It also has another advantage: the computer is likely to find solutions which are not only unexpected but also highly feasible.

The simulation technique proposed here does not try to be definitive. It does not tell when to sell equity, or what dividend payout rate to set. It only helps evaluate interrelated sets of policies which cannot very well be evaluated one by one on their own merits. Two or three employees would work on it part time. Its primary uses would be:

- a) To run "states of the world" to see what the consequences of each might be for the company.
- b) To identify which variables or policies have more bottom line impact than others.
- c) To identify positions which are particularly vulnerable or impervious to interest rate or exchange rate fluctuations.

Figure 1

Consolidated Balance Sheet

Current	
Long-Term	

Domestic Subsidiary

Current Sub-system	3
Long-Term Sub-system	1

Foreign Subsidiary

Current Sub-system	4
Long-Term Sub-system	2

Solution sequence

1. Trial solution to sub-system 1. (Data passed to sub-system 3.)
2. Trial solution to sub-system 2. (Data passed to sub-system 4.)
3. Trial solution to sub-system 3. (Incorporates data passed from sub-system 1, and passes data to sub-system 4.)
4. Trial solution to sub-system 4. (Using data passed from sub-systems 2 and 3.)
5. Compute pro forma consolidated balance sheet and income statement. (Change input data and return to 1.)

## REFERENCES

<sup>1</sup>For a sophisticated version of this comparison, see James Van Horne, "A Risk-Return Analysis of a Firm's Working-Capital Position," *The Engineering Economist*, Winter 1969, pp. 71-88.

<sup>2</sup>Hisham Fadel and John M. Parkinson, "Liquidity Evaluation by Means of Ratio Analysis," *Accounting and Business Research*, Spring 1978, pp. 101-107.

<sup>3</sup>For an example of how multinationals obtain such overdraft facilities, see Richard Ensore, "Why Phillips Chose an Unknown Amsterdam Bank to Manage its Cash," *Euromoney*, September 1979. This and similar articles illustrate how banks compete to supply such services. For that reason the chance of actually running out of cash, which Van Horne takes seriously in his 1969 article, is hardly the issue today.

<sup>4</sup>There is a considerable literature on computer simulation and its applications to management. See Thomas Naylor, *Computer Simulation Experiments with Models of Economic Systems*, Wiley 1971. Other authors have proposed deterministic optimization models to allocate liquid assets in multinational companies. See David Rutenberg "Maneuvering Liquid Assets in a Multi-national Company: Formulation and Deterministic Solution Procedures," *Management Science*, June 1970, pp. 671-684. See also the model described in the appendix by Daniel Schydrowsky in Robbins and Stobaugh, *Money in the Multinational Enterprise*, Basic Books, 1971. These models are more ambitious than this one, and the programming problems they involve are more difficult, because they seek unique, unambiguous optima. This model, in contrast, only generates scenarios.