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An Evaluation of the Effectiveness of Return on Investment as a Technique for Plannings and Control

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AN EVALUATION OF THE EFFECTIVENESS OF RETURN ON INVESTMENT AS A TECHNIQUE FOR PLANNING AND CONTROL

BY

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CHAPTER I

INTRODUCTION

In an investment center, profit (the difference between revenues and expenses) is compared with the assets employed in generating that profit. The sum of these assets employed, or the investment base, must be considered in order to determine whether the division has earned a satisfactory return on the capital supplied it by investors.1

The greater the amount of resources allocated to a division, the greater the amount of profits expected to be earned by that division. By considering the assets employed, a meaningful comparison can be made of divisions or similar outside companies. These comparisons are helpful in deciding how resources should be allocated and also in determining how well divisional managers are performing.

It is hoped that by relating profits to the investment base, the divisional manager will be motivated to maximize profits from the resources allocated to him, and also to invest

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1 Robert N. Anthony and John Dearden, Management Control Systems, 3rd ed., Richard D. Irwin, Homewood, IL, 1976, pp. 335-336.

in additional resources when such an investment will yield an adequate return (or disinvest when the return does not meet the company's cost of capital).2

Thus, the purpose of measuring assets employed, as stated by Anthony and Dearden, is twofold:

> 1. to provide information that is useful in making decisions about assets employed and to motivate divisional to make sound decisions, that is, decisions that are in the best interests of the company, and
>
> 2. to measure the performance of the division as an economic entity.3

Return on investment is one method of relating profit to assets employed. This study examines various authors' views on whether return on investment (ROI) is a viable and effective tool for planning and control. The advantages and disadvantages of ROI are looked at and ROI is compared with some appropriate alternatives. In addition, some adjustments to ROI will be suggested to increase its usefulness and effectiveness.

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2 Ibid., p.336.

3 Robert N. Anthony and John Dearden, Management Control Systems, 4th ed., Richard D. Irwin, Homewood, IL, 1980, p. 277.

CHAPTER II

ADVANTAGES OF USING ROI

The application of ROI as a measure of divisional performance is attributed specific advantages. ROI is a single, comprehensive figure, influenced by everything that has happened which affects the financial status of a division. This single figure gives a basis for direct comparison among divisions, between a division and outside companies, or for comparison between a division and alternatives for investment of funds. ROI measures how well the division manager uses the assets of the firm to generate profits. Ideally, the manager will use the assets at his disposal to the fullest and will acquire additional assets only when they will improve his investment return. Because ROI is a percentage return measurement, it is consistent with how firms measure their cost of capital. ROI also checks automatically on the accuracy of capital investment proposals. If an approved project earns less than that shown in a capital investment proposal, the division's rate of return will decrease, showing the adverse

result.4 ROI is commonly used, and therefore is better understood than other alternatives suggested by those who are not satisfied with using ROI as a measure of performance evaluation. ROI is useful for external users because they can calculate it from financial statement information; this is not true of residual income, an often suggested alternative. Firms focus on ROI because outsiders, especially potential investors, focus on it.

Although ROI is a popular measure, many authorities criticize its use because of some problems encountered with it.

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4 John Dearden, "The Case Against ROI Control", Harvard Business Review, May-June 1969, p. 125.

CHAPTER III

CRITICISMS AGAINST ROI

Dearden separates the limitations inherent in the ROI system into two types: technical and implementation. The technical limitations are those that cause incongruities between divisional objectives and company goals, and which result in motivating division managers to take uneconomic actions. The implementation limitations often result from the inability to evaluate accurately the profit performance of division managers.5

Technical limitations

One point criticized by numerous writers and listed by Dearden as the single most important limitation of ROI is the fact that ROI oversimplifies a complex decision-making process. Dearden states: "The use of a single ratio to measure division performance reduces investment decision-making to a simple but unrealistic economic model."6 Using the ratio, any change in the investment base (denominator) can be traded off

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5 Ibid, p. 126.

6 Ibid.

against a specific amount of profit which is determined by the division's objective rate of return.

With the ROI control system, the ratio of investment to profits (the economic tradeoff) is constant throughout the division. It is the same for all assets, at all times, while the objective remains the same. The ratio also remains the same for adding additional investments and for reducing the value of investments currently on the books. While the ratio or tradeoff is constant throughout a single division, it will differ among divisions whose profit objectives differ. Thus, inventories in one division can have a different carrying charge than identical inventories in another division with another profit objective.

Under the ROI system, each division has an ROI objective; as a result, a division manager will not be likely to propose a capital investment unless it is expected to earn a return at least as high as his objective. While a division with an objective of 6% will be willing to invest in any project expected to earn more than that rate, another division with an objective of 20% would not be willing to invest unless the return was expected to meet this objective. Divisional profit objectives will vary from the company's cutoff rate for capital expenditures, which can cause inconsistent capital investment actions.

The ROI system requires that the same rate of return be

earned by different types of fixed assets. Dearden gives an example to illustrate this:

> A general purpose warehouse that can be leased fairly inexpensively must earn the same return as special-purpose equipment that may be subject to considerable potential obsolescence. This means that divisions with high profit objectives will maximize their investment returns by leasing as much of their assets as possible. Conversely, divisions with low profit objectives might improve their returns by purchasing the same type of equipment that the other divisions are leasing.7

Implementation constraints

Dearden lists three problems that may occur in implementing an ROI system. First, it can be very difficult to set equitable annual profit objectives, i.e., to decide on an appropriate rate of return for a particular year for a particular division. The effectiveness of the entire system depends on equitable goals. Performance should not be evaluated against a less than equitable objective.

A second problem is that accounting profit can be a poor measure of performance. Projects that have been implemented which will affect future performance will often not be reflected in current results of operations.

A third problem Dearden mentions is that it is often unclear what factors cause deviation from a profit objective. Even though an objective was fair at the start of the period, use of the same objective at the end of the period may no longer be an equitable basis for performance evaluation.

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7 Ibid., p. 127.

Dearden feels that because of the problems just mentioned, ROI systems do not accomplish their main objective. Rather, they encourage managers to act contrary to the overall interests of the company.8

L.A. Gordon brings up some areas that he believes are limitations of ROI systems, which should be considered when using this measure. He begins with the fact that ROI is a single period evaluation. It is based on information from one period, with no consideration of earlier or later events. For projects that take a few years before starting to generate substantial profits, the early years would probably show an ROI quite low in relation to profit objectives. The computation of an average ROI for several periods would offset this problem to a degree, but not completely.9

ROI is derived from the accounting system and according to generally accepted accounting principles. As a result, accounting values are in use rather than economic values of assets, income, etc. The ROI measure is therefore affected by the limitations of accounting information, such as the arbitrariness of accrual accounting, the lack of relevance in using historical cost, and other imperfections of accounting system.

Gordon reminds managers that maximizing the firm's ROI is not synonymous with maximizing accounting or economic income.

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8 Ibid., p. 132.

9 Lawrence A. Gordon, "The Return On Investment and the Cost of Capital", Management Accounting, February 1976, p. 40.

Therefore, he warns against too much concern with maximization of ROI at the risk of overlooking some potentially good investment opportunities. In the evaluation of projects, Gordon feels expected internal rate of return (IRR) should be compared with actual IRR, and expected cash flows should be compared to actual cash flows, not actual ROI. He states:

> Ideally, the accounting information system should be modified so that the true economic events are recorded, thereby eliminating the differences between the accounting ROI and the IRR. Thus, the major benefit derived from calculating a firm's return on investment must come from its usefulness as a surrogate for the firm's internal rate of return, since the latter can be compared with the firm's cost of capital.10

Regarding ROI and its use as a performance evaluator, Henderson and Dearden state:

> It is our conviction that ROI for divisional performance evaluation can be so misleading that it is destructive. It provides information that logically leads to incorrect decisions. It motivates division managers to take actions contrary to the best interests of the company. And it provides top management with misleading information about divisional performance. ROI fails in these ways because it uses profit centers which cannot really be profit centers, transfer prices which are not really prices and investment bases which are not in fact relevant.11

Henderson and Dearden stress the fact that the components of the ROI fraction, net profit and investment, are the results of accounting data and, as such, are too arbitrary to justify

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10 Ibid.

11 Bruce D. Henderson and John Dearden, "New System for Divisional Control", Harvard Business Review, September 1966, p. 144.

their use in measuring performance. Accounting net profit can be significantly affected by the method of depreciation used, by the estimated life of an investment, and by whether an expenditure is capitalized or expensed, as well as by many other accounting alternatives. Over the long term, these differences will cancel out; but over shorter time periods, a comparison of two managers with identical performances could result in considerable differences. While accountants are aware of the arbitrariness in their field, and must work around this weak condition, it is a mistake to use such an arbitrary figure for evaluating management performance when better information is available.

Regarding the investment base in ROI, Henderson and Dearden summarize the problems into two points. First, arbitrariness results because some expenditures that have residual values beyond the accounting period are expensed rather than capitalized. Secondly, the amount of investment normally has no relation to the present economic usefulness and value of the assets included. Rather, the investment amount is the net result of many decisions by various people over a period of time.

Because of the arbitrariness, the inclusion of sunk cost allocation, and the tendency for managers to be motivated to optimize divisional profits at the possible detriment of the

company as a whole, Henderson and Dearden feel another measure should be used instead of ROI.12

Stanley Henrici states that ROI is meaningless and irrelevant. Because of its lack of a single, clear definition, it doesn't say the same thing to all who hear it. Both the words "return" and "investment" (the numerator and the denominator of the ROI ratio) have a variety of definitions, which leave openings for misunderstandings and errors. The setting of an ROI objective based on irrelevant book values has often resulted in the downfall of a good manager who hopelessly tried to meet unrealistic expectations, and the disposal or closing down of an income-producing operating plant with a lower ROI than the objective set for it.13

Bierman and Haas claim that setting an ROI goal too high can cause negative results, such as lower profits, because of increased costs, loss of market share, technical obsolescence, a decrease in the earnings growth rate, or a decrease in the price of common stock. Conservatism in business decisions may result in additional risk to the firm and smaller profits. Management's failure to undertake reasonable investments because of a high hurdle rate can result in a decreased ROI of the firm's current long-lived assets, thereby increasing the overall risk of the firm. Use of a high hurdle rate tends to

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12 Ibid., p. 149.

13 Stanley B. Henrici, "The Perversity, Peril and Pathos of ROI", Financial Analysts Journal, September/October 1983, pp. 79-80.

restrict investment and prevent investment in cost-saving equipment.14

Paul Tse states:

> Basic flaws in using any profit measure as an indication of performance exist. A major weakness, for example, is accounting imperfections which use accounting returns as a proxy for economic value. This surrogate is far from being adequate because historical cost bears little semblance to future costs. Also, the accrual method of accounting leads to a significant degree of artitrariness. Equally important, any measurement of profits is necessarily unidimensional and assumes profit-mazimization as a sole objective, both in the short as well as long run.15

Authorities on ROI and other methods of performance evaluation give much attention to the area of valuing the investment base (the denominator of the ROI ratio), and the problems that arise with the various valuation methods. In view of this fact, the next chapter focuses on the area of valuation of assets in the investment base.

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14 Harold Bierman, Jr., and Jerome E. Haas, "Are High Cut-off Rates a Fallacy?", Financial Executive, June 1973, pp. 89-91.

15 Paul S. Tse, "Evaluating Performance in Multinationals", Management Accounting, June 1979, p. 23.

CHAPTER IV

VALUING ASSETS IN THE INVESTMENT BASE

To derive an ROI measure that is meaningful and effective as a tool for performance evaluation, it is essential that the asset base (denominator) includes the appropriate data. Stafford gives two criteria which the asset base must meet:

1. The assets included in the asset base should be only those over which the individual manager has control. A manager should not be held responsible for the behavior of variables over which he has no control.
2. The asset base used should motivate and encourage individuals to act in the best interests of the company as a whole.16

Stafford states: "In appraising management performance we are concerned with the use which management makes of the total resources over which it has control."17 He feels that the use of equity funds rather than an asset base would result in appraising management on only part of the total resources at

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16 Victor J. Stafford, "Asset Base for Performance Evaluation", Management Accounting, February 1968, p. 21.

17 Ibid.

a company's disposal if the company is leveraged; thus, an asset base is preferable to an equity base.

Stafford explains that the objective is to appraise management performance, rather than the company's performance. In this regard, he states that: " Management should be held accountable for the total controllable assets at its disposal less any non-interest bearing liabilities."18 By using the asset base as defined, Stafford feels the resources at management's disposal are properly reflected. In addition, managers are motivated to act in the best interests of the company.

Regarding the inclusion of assets used to determine an ROI measure, there is much disagreement as to which assets should be included, at what point in time they should be valued, and how they should be valued. Stafford lists certain current assets that he feels should be included in the asset base. An average of asset balances, rather than the value of assets at one point in time, should be used in the computation of an asset base.

As for the inventory valuation, Stafford chooses valuation at standard direct cost, and on a FIFO basis, as the most fitting. By using a standard direct cost, period costs are charged to the period in which they are incurred. This choice of valuation methods recognizes income at the point of sale, rather than the point of production, which more accurately reflects management performance. This method would also

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18 Ibid., p. 22.

discourage management from building up excessive inventories when this activity would not be in the best interests of the company. The use of absorption costing or actual costs rather than standard direct costs causes fixed costs to be allocated over the number of units produced in a period, thus allowing variation in the cost of an identical unit produced during different time periods. This would allow and encourage the buildup of inventories whether or not in the best interests of the company.

Stafford chose FIFO over LIFO because FIFO gives a more realistic estimate of the amount of money invested in inventory and minimizes the effect of price level changes on profits. FIFO more closely approximates the current cost of replacing inventory items than does LIFO.

The fixed assets included in the asset base can be valued in a number of ways. Stafford feels that the criterion selected for valuing fixed assets should cause decentralized management, acting in its own interests, also to always act in the best interests of the company as a whole.19

The most common alternatives used for valuing fixed assets include valuation at gross book value, net book value, and market value. Stafford prefers use of market value, because it motivates managers, in all cases, to make decisions in the best interests of the company. This choice yields an asset base consisting of current dollars and, according to

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19 Ibid.

Stafford, provides a more correct basis for interdivisional comparisons by having a built-in mechanism for making adjustments for price-level changes. Although the market valuation is criticized for giving the erroneous impression that management becomes more efficient as yearly depreciation charges reduce the asset base, Stafford says market value is the least inadequate alternative because it does not encourage decentralized management to make investment and replacement decisions that are not in the company's best interests. The cost of determining market values is a problem with this method of valuation, since these values are not immediately accessible from the accounting records; but those who advocate market value argue that even a good guess of market values would produce better results than would be derived from the other evaluation methods. Stafford states that the only viable alternative to valuing fixed assets at market value is to use gross book value; however, he feels this is only appropriate where the manager being evaluated does not have the final authority for acquisition and disposal of fixed assets. In this case, the possibility of disposing of assets when not in the company's best interests is eliminated.20

Dearden feels that some method other than gross or net book value should be used. He supports some amount based on economic value. For example, theoretically, the present value of the future cash flows that will be generated by a

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20 Ibid., p. 23.

group of assets would be acceptable. However, Dearden admits he has not discovered a way to satisfactorily implement this suggestion because of a number of drawbacks relating to the practical implementation of the concept.21

Net book value is the most common basis used to include fixed assets in the ROI computation, according to a study by Mauriel and Anthony.22 Net book value, or gross book value minus accumulated depreciation, causes the investment amount to be reduced by the undepreciated amount when an asset is scrapped. When a fixed asset is replaced using net book value, the investment base increases by the cost of the new asset less the salvage value of the old. Under this method, a division's ROI cannot be improved merely by disposing of fixed assets. As Dearden states:

> (There) is a reasonable degree of goal congruence between the division and the company with respect to the retirement and the replacement of fixed assets if the assets are included in the investment base at net book value.23

A problem does arise using net book value because, as an asset ages, the investment base is automatically reduced as a result of depreciation. The rate of return will therefore increase simply by the passage of time. This effect is significantly increased by the use of accelerated depreciation

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21 Dearden, pp. 133-134.

22 John J. Mauriel and Robert N. Anthony, "Misevaluation of Investment Center Performance", Harvard Business Review, March/April 1966, p. 98.

23 Dearden, p. 125.

methods. In the early years of an asset's life, depreciation is high, and the return on investment is low. As the asset becomes older, depreciation decreases and returns become higher; therefore, the net book value method discourages new investments, which reduce a division's ROI in the short run.

Stafford agrees that the use of net assets will encourage wrong decisions in the replacement of assets by motivating a manager, against the best interests of the firm, to hold on to old assets instead of replacing them with new assets that may have more earning power.24

According to Mauriel and Anthony, gross book value of assets is the second most common method used to include assets in the investment base.25

The gross book value method is considered unsatisfactory by many authors because it makes manipulation of the ROI measure possible. This method includes an asset in the investment base at the original cost of the asset. Depending on the method of depreciation used, when an asset is scrapped or disposed of, there may be no loss recognized, or a smaller loss than under other depreciation methods. Thus, a manager may increase his ROI by scrapping an asset that is still useful, but is not contributing profits at a rate that meets the division's objective.

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24 Stafford, p. 23.

25 Mauriel and Anthony, p. 98.

Nigam gives support to the use of gross value of assets, without allowing for any depreciation. This valuation method eliminates distortions that would arise from use of different depreciation methods. It also eliminates distortions caused when earnings are related to an ever-decreasing investment and distortions resulting from persistent inflation, which causes the purchase price of assets to rise. This investment base is often considered the only "stable and uniformly compiled" base.26

Nigam considers use of gross value of assets inadequate as an investment base. He states that:

> (Its) failure to provide for depreciation on some method will result in a declining rate of return as the investment base in respect to a set of assets will stand unchanged. While its point as a hedge against inflation is to be commended, acquisition cost of assets is hardly a satisfactory basis on which to account for inflation.27

Nigam indicates that restricting the definition of the investment base by traditional accounting methods will not yield a satisfactory result. He states that: "Unless the assets are expressed at up-to-date prices and capital is maintained in real terms, a valid and practically significant ROI cannot be calculated."28

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26 B. M. Lall Nigam, "Enhancing the ROI Credibility: Some Theoretical Underpinnings", Cost and Management, July-August 1981, p. 41.

27 Ibid.

28 Ibid., p. 42.

The question remains of how to derive a value for fixed assets. Current buying prices or replacement costs of assets present a meaningful basis on which to determine income and financial position. When prices are available for identical assets, there is no problem. When prices for identical assets are not available, prices of near-substitutes are used. As a last resort, indices are used, resulting in educated guesses and estimates.

Nigam is of the opinion that the replacement cost-based accounting system fails to be either relevant or objective. He explains:

> Apart from the questionable methods of finding replacement prices, mathematical solecism in the addition exercise, and the fallacy underlying the repeated assumption that the firm should build up funds to replace in the future the plant and properties currently being employed, the theory raises the basic definitional problem of income and wealth.29

According to Nigam, from an economics viewpoint, even assets valued at replacement cost will not give a measure of wealth (defined as a stock of purchasing power available for adaptation) or a measure of earning power on that wealth. The only meaningful alternative is to use current cash equivalents (CCEs). Nigam states: "The CCEs are best evidenced by the market resale prices, though the two are not necessarily synonymous."30

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29 Ibid.

30 Ibid.

The market selling prices provide an external basis for measuring changes in equity, and an opportunity cost of using the assets. This basis is a non-accounting value, not affected by an entity's choice of accounting principles and procedures.

Nigam summarizes his views with the following statement:

> In truth, income and capital, the numerator and denominator respectively in ROI, cannot be measured in any way other than through the non-monetary assets being stated at their net realizable values at two points of time. . . It is the application of the same principles of CCEs which will enable the characteristics of one firm to be compared with those of others. There is no other conceivable method of preparing accounts which can make the exercise of inter-firm and intra-firm comparison feasible either by ROI or in conjunction with ROI.31

Williamson believes that use of gross assets is a more useful management tool than use of net assets because gross assets would not be affected by changes in expansion rates. He states:

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31 Ibid., p. 42-43.

> Changes over time in the accounting rate of return based on gross assets indicate that changes in the average time-adjusted rate have occurred, whereas changes in the rate based on net assets may mean only that the division's expansion rate has changed. The rate based on gross assets is thus useful in making period-to-period comparisons of a particular segment's profitability. Because the accounting rate based on either gross or net assets will be different than the time-adjusted rate (by an amount dependent upon the service life of the assets and the time-adjusted rate), however, neither would be as useful as an absolute measure of profitability, i.e., for comparison with the accounting rates of dissimilar segments or with other interest rates.32

Solomons comments on the problem of valuation of fixed assets in his book on divisional performance. He states:

> There is something inherently strange about the view that it is right to include fixed assets in a balance sheet at their depreciated value, but wrong to include them in a computation of capital at that value. The only reason for holding such a view is the irrational behavior of the rate of return on investment when fixed assets are taken at book value rather than cost. The proper remedy is to be found in the use of a compound interest method of depreciation, not in the abandonment of book value as a basis for valuing investment. If depreciation were handled in a theoretically correct manner (i.e., by the compound interest method) the decline in the book value of depreciating assets would not of itself disturb the stability of the rate of return on investment.33

It is rare to find this "theoretically correct method" of depreciation used in practice because it is not commonly understood and is more difficult to compute.

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32 Robert W. Williamson, "Measuring Divisional Profitability", Management Accounting, January 1975, p. 42.

33 David Solomons, Divisional Performance: Measurement and Control, Richard D. Irwin, Homewood, IL, 1965, p. 135.

CHAPTER V

IN DEFENSE OF ROI

Dearden made a statement indicating that although ROI as a tool in financial control was useful when introduced, it is now obsolete.34 Bierman responded to Dearden's comment with the following:

> There were good reasons for the introduction of ROI as a performance measurement device and these reasons still exist. And they will not go away in the future. . . . Unfortunately it is easy to confuse the ROI issue with difficulties that are only tangentially related to ROI.35

Bierman continues by saying that ROI is not equally appropriate in all situations, but there are some situations in which ROI can be applied to judge performance effectively. For example, to compute ROI, it is necessary to first come up with an income figure. In some cases, where an operating unit is not autonomous, it would be more appropriate to use cost minimization than profit maximization and/or maximization of ROI. Thus, ROI can be useful and effective in some instances

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34 Dearden, p. 124.

35 Harold Bierman Jr., "ROI as a measure of Managerial Performance", Financial Executive, March 1973, p. 40.

without necessarily being appropriate in all circumstances.36

Dearden claims that a problem with ROI is that it "oversimplifies a very complex decision-making process".37

Bierman answers this point by stating that ROI stands as a tool to be used in performance measurement. He says some managers misunderstand its meaning or place too much faith in an ROI measure, or assume it to be more than it is, but these facts do not change the measure itself or its meaning. Bierman and other supporters of ROI do not claim it to be the best or the only measure of performance, but realize that it can be an important tool, and a very useful one. This point is strengthened by the following quote from Anthony and Dearden: "An increase in profits does not represent improved performance if it is accompanied by a more than proportional increase in the assets employed in generating those profits".37 The necessity of comparing profits to assets employed is made clear by this statement.

Bierman stresses the point that, in addition to being concerned with return on investment, management should also monitor the growth of assets and income in measuring the performance of a division. He states:

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36 Ibid.

37 Dearden, p. 124.

37 Anthony and Dearden, 3rd ed., p. 336.

> The investment decision problem resulting from a desire to maintain a high ROI highlights the necessity of relying on more than one measurement technique, and of bringing in sufficient measures to restrain the impulses of persons trying to circumvent the control-evaluation system.38

Reece and Cool state that authors criticizing ROI seem to make assumptions that are not necessarily valid. Regarding how ROI targets are set, authors seem to assume that an investment center's ROI is set at a level at least as high as current ROI, and then budgeted sales, profits and assets are developed around this target.39

Reece and Cool believe that a more realistic order of these events in actual practice is to budget sales, budget profit, and budget assets; then, after approval of these, to divide budgeted profit by budgeted assets to arrive at an ROI target. They emphasize key approvals in the budgeting of profit and assets, rather than in arriving at the ROI target.

Reece and Cool state that while they do not deny that conceptual weaknesses do exist, their survey indicates that the use of ROI has increased significantly during the very years its weaknesses have been publicized. They state:

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38 Bierman, p. 41.

39 James S. Reece and William R. Cool, "Measuring Investment Center Performance", Harvard Business Review, May/June 1978, p. 36.

> We feel that designers of financial control systems do not intentionally design major flaws into these systems; therefore, ROI's conceptual weaknesses must not be felt to lead in practice to poor decisions.40

Smyth feels that, in comparing ROI to profit margins and sales volumes, ROI is more useful as a performance evaluator. ROI defines responsibility for enterprise activities and can be used in evaluating the manager's performance. It points out product lines whose returns are below their targets, and it aids in determining the best use of limited funds. Smyth states that if ROI is used with an awareness of its limitations and with a clear purpose in mind, it can be a valuable tool.41

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40 Ibid., p. 36.

41 E. Bryan Smyth, "Rate of Return as a Measure of Performance", The Florida Certified Public Accountant, November 1964, p. 17.

CHAPTER VI

ADJUSTMENTS TO ROI

The ROI ratio is considered a simple, comprehensive measure of performance. Because it is theoretically simple, and no alternative ratio has been found, management continues to use it. In practice, the ROI ratio is not so simple. Leopold Schnachner states that there is no agreement in practice on a precise definition of terms, which is a large factor in the problems relating to ROI.42

To arrive at an ROI that is meaningful and useful, managers must be aware of and work around some specific problem areas. Saksena lists a number of these areas in an attempt to increase awareness of them, and therefore, increase the effectiveness of the use of ROI as a performance measure. These areas fall into the categories of profit determination problems, investment determination problems, and general problems.43

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42 Leopold Schnachner, "Return on Investment - Its Values, Determination and Uses", CPA Journal, April 1973, p. 278.

43 Ram Saksena, "Application of the ROI Technique for Appraisal of the Effectiveness of Divisional Managers in a Divisionalized Firm", Accountant, (India), August 1, 1975, p. 516.

Saksena believes that the application of the ROI technique for appraising the overall performance of a firm is quite difficult and thus, requires expert knowledge. He also believes that unless a tool for performance measurement is equitable, it will fail to be a motivator, and will result in negative responses from division managers. To be equitable and acceptable, the evaluation standards must be attainable. A standard that is too low will adversely affect the value of the firm. When a standard is set too high, divisional managers become frustrated because they see no possible way to achieve the goal. In setting the standard, relevant factors like age and condition of production facilities, prices of raw materials, cost of transportation, types of customers served, product lines, local wage structures, etc., should be considered. In addition, the manager being evaluated should be involved in setting the standard, since he would be most aware of the operations of his division.44

The aspect of controllability should be incorporated in setting an evaluation standard. The standard should be based only on factors that are within the control of the division manager. A manager often feels threatened when held accountable for components of an ROI measure for which he has no control.

Although complete delegation of authority is not possible, top management should balance responsibility assigned to a

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44 Ibid.

division manager with the authority delegated. Because of the dynamic nature of management, no rule of thumb regarding delegation of authority can be formulated; but in appraising a manager's effectiveness against an ROI standard, top management must consider whether the divisional manager was free to make the decisions that resulted in the ROI measure.

Clear divisional boundaries are very important in evaluating a divisional manager. Clearly defined boundaries make the profit performance of the divisional manager more meaningful. They also produce better incentives, facilitate supervision, and clarify development guides.45 A lack of clarity in these boundaries results in arbitrary separation of costs and revenues, and will inhibit a manager's actions regarding decisions about operations.

Top management should also be conscious of the tendency of divisional managers to sub-optimize, or take actions that improve a division's profit picture while hurting the firm as a whole. Saksena calls this "dysfunctional behavior". This type of behavior is recognized as a problem of the ROI ratio by many authors, especially when discussing the most appropriate choice of valuation methods for the asset or investment base. This tendency becomes stronger in larger firms in which frequent personnel transfers occur.

According to Saksena, top management must make adjustments for time factors of projects, recognizing that some

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45 Ibid.

projects are good for the firm as a whole, but may take the division several periods to begin to show profits; evaluations should be based on potential as well as current profits.

Besides the general factors mentioned above, problems are encountered in determining divisional profits to be used in computing ROI for appraisal of the effectiveness of management. The fewer the occurrences of intercompany transfers, the cleaner and clearer the separation of profits between divisions can be. A meaningful ROI measure can only be derived if the separation of profits between divisions is rational and equitable. While designing the firm's organizational structure, this factor should be kept in mind.

Saksena feels that because the inclusion of uncontrollable variables would affect the motivational forces of the ROI, only the revenue and cost items controllable by the divisional manager should be considered when appraising a manager's effectiveness. The effects of inter-divisional transfers and transfer pricing should also be considered, because the revenue of the selling division and the costs of the buying division are affected in these transactions. Various methods are available and in use to determine transfer prices. Saksena supports the separate entity approach, because it allows free negotiating and bargaining between the divisions, similar to unrelated entities dealing at arm's length. This method then results in the most meaningful and equitable appraisal of division managers.

Regarding common costs such as headquarters operating costs, administrative and advertising costs, Saksena suggests that these should be excluded from the computation of divisional ROI used for appraisal purposes. These company costs are usually allocated on an arbitrary basis and are not controllable by the division manager; therefore, they should not be subtracted from divisional revenues to arrive at ROI.

The same principle should be applied to allocation of assets as is applied to allocation of costs. Only if the use of common assets can be traced accurately to a particular division should the costs be considered in evaluation of a division manager. The exclusion of the arbitrary allocation of assets results in a more sensitive and useful ROI for measuring managerial performance.

Idle assets attributable to a specific division (under a division manager's control) should be included in the investment base. Intangible assets should also be included if they represent funds committed by a specific division. Amounts that are insignificant and difficult to allocate should be left out.

Saksena suggests using the replacement cost method for investment valuation because it values assets at the cost to duplicate it in its present condition. He believes this to be the most reasonable method, assuming that a primary goal of ROI is to determine how efficiently and effectively a manager has utilized resources placed in his control. This method should

motivate a manager to contribute his best to maximization of the value of the firm.46

Saksena summarizes his article by stating:

> The ROI technique alone cannot provide a sufficient basis for financial evaluation and it must be supplemented by other techniques like budgetary control, cost control through standard costing, quality control, interperiod interdivisional and interfirm comparisons of a division's growth rate in sales, profits and market share, etc.47

Danfy suggests that comparing the ROI of two divisions gives one very little information. He says that a better method is to use the two ratios that let one analyze where changes occurred. Net income divided by sales represents net income as a percentage of sales. Sales divided by net assets yields the volume of sales that is supported by one dollar of net assets employed, often called turnover. Danfy states:

> When sales are introduced as a component of the ROI, both the net income and the investment (in net assets) are reduced to individual ratios, which can then be compared with similar ratios regardless of size.48

By having information on the components that make up the ROI, no false assumptions need be made, allowing for more meaningful comparison.

An adjustment suggested by various authors to partially correct the inconsistency between the return shown on division

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46 Ibid., p. 519.

47 Ibid.

48 Richard J. Danfy, "Analyzing the Return on Investment", Management Accounting, September 1975, p. 31.

profit statements and that derived from capital investment analysis, is to use the annuity method of depreciation. Under this method, the result is opposite that of accelerated depreciation methods, in that the annual amount of depreciation increases with the passage of time.

Dearden explains the effects of annuity depreciation as follows:

> Annuity depreciation operates on the principle that the rate of return is a constant percentage of the net book value, and that depreciation represents the return of capital.
>
> Consequently, in the early years, the proportion of earnings required to maintain the average return will be relatively high and the return of principal relatively low. As the book value decreases, the profits required to maintain the rate of return will decrease and the return of principal (the depreciation) will increase.
>
> Where the cash flows are even, the annuity method of depreciation is entirely consistent with the discounted cash flow method of evaluating capital investment proposals. In actual business situations, the cash flows are practically never even. However, in those cases where the cash flows are not even, the annuity method of depreciation will approximate the discounted cash flows much better than accelerated or straight-line depreciation. 49

Although use of the annuity depreciation method would show a more accurate picture of return on investment, this method is seldom used. Dearden believes that management is reluctant to use a method to measure divisional performance that differs from methods used for accounting records.50

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49 Dearden, p. 131.

50 Ibid.

Brouwer says that the use of net book value as an asset base encourages division managers to hold on to older capital assets and postpone new acquisitions. To correct this weakness in the ROI measure, he states that the use of annuity depreciation or another decelerated depreciation method would encourage managers to undertake profitable long-term capital investment projects, without the worry of a decreased measure of performance. Brouwer states: "The annuity method matches the recovery of investment that is implicit in the present value calculation used in capital budgeting."51 The result is less depreciation expense in the early years of an investment when its value is high, and an increase in the depreciation each year as the asset base and the value of the investment decrease. This stabilizes the ROI over the asset's life.

Brouwer mentions the fact that because a division manager historically stays with a particular division a short time, the motivation to act to enhance short-term performance is strong, especially since compensation is based on short-term performance. If the manager acts to improve long-term profits, at the expense of short-term profits, he may never receive recognition for his work; even worse, he may appear incompetent.

Brouwer suggests that performance measurements should balance short term and long term financial goals of a corporation. Although ROI is an important measurement of a manager's

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51 Curt Brouwer, "Measuring the Division Manager's Performance", Management Accounting, December 1984, p. 32.

use of capital resources and provides general insight into the productivity of the division, it should be used in combination with other measurements, making up a set that allow top management to emphasize the desired objectives of a given division.

Brouwer lists a number of other factors that should be considered in evaluating a manager's performance: product quality, productivity (ratio of output produced to inputs consumed), market share, labor turnover, timely delivery, new product development, and manufacturing flexibility. Brouwer feels that, although these factors don't coincide with those investors use to evaluate corporate performance, it is important to consider them in managerial performance evaluation.52

Herbert Kierulff's article agrees with Brouwer's statement. Kierulff infers that, in practice, management evaluations must take into account other objectives besides ROI, as well as relevant constraints, externalities, and available cost information. To the extent these other factors have an effect, ROI is diminished in importance. Goals such as sales, earnings per share, share of the market, and other strategic considerations may be conflicting. Somehow, a manager must find a balance among the many objectives he faces. As the number of objectives increases, or as one or more non-ROI objectives grows in importance, ROI must become less relevant. Thus,

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52 Ibid., pp. 32-33.

Kierulff's point of view is that ROI should be put in its proper perspective as one of several variables in the evaluation process.53

Weston presents information on the Du Pont system, which utilized the ROI measure as one piece of the whole system. The major characteristic of the Du Pont management control system is the measurement of financial performance in terms of return on investment. There is a wide degree of latitude allowed industrial departments in meeting their goals. As long as the ROI objective is met, little attention is devoted to how it was accomplished. Some examples of areas that can be adjusted to accomplish the ROI objective are: reducing costs in the short run; increasing sales volume or prices; and reducing the investment base.54

Another characteristic of the Du Pont system is that performance is evaluated quarterly by comparing the ROI objective with the actual return on investment, and then analyzing the difference.55

Weston states that many of the criticisms against ROI "are directed against a static concept of the ROI control system with inadequate recognition of its dynamic process

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53 Herbert E. Kierulff, "Return on Investment and the Fatal Flaw", California Management Review, Winter 1976, Vol. XIX, No. 2, pg. 66.

54 J. Fred Weston, "ROI Planning and Control", Business Horizons, August 1972, p. 35.

55 Dearden, p. 125.

characteristics".56 He says that there is misunderstanding about the ROI system as Du Pont developed and used it, and confusion about its implications. He states: "The static form of the Du Pont system focuses on a formula chart showing the relationship of factors affecting ROI, which is the end focus of the chart."57 It is the static form of ROI that is attributed with the advantages and criticisms commonly raised when the subject of ROI is discussed.

Weston states that the defects attributed to the ROI system are not inherent in the method, but rather are due to limitations of traditional accounting methods and arbitrary procedures. Static control systems tend to have motivational defects; they also have difficulty in assigning responsibility for results, and are open to attempts at beating the system. Weston states that the static form of ROI misses some important positive values that are part of the dynamic form of the Du Pont planning and control system.

The planning and control system developed by Du Pont was a dynamic process, much different than many of the adaptations used by various firms now. Weston states that in this dynamic process, a detailed analysis of operations is provided in a

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56 Weston, p. 35.

57 Ibid., 36.

series of individual charts on each element of investment, revenue or cost.58

In the Du Pont system, historical data are presented for the previous five years and the current year on an annual basis, plus one additional year is forecasted. The previous and current years' data are provided on a monthly basis. Forecasts for four quarters into the future are made and repeated periodically. The proximate quarter's forecast may be expressed by month. By forecast and review on a quarterly basis, each quarter will have been projected and reviewed four times before it actually occurs. Weston feels that it is the review process that makes the system dynamic, with the main elements of the system being the review itself, process rather than goal orientation, and the adaptive learning process.59

In the review process, proposals are presented to the firm's finance committee. The prospective ROI figures of alternative investment opportunities represent one of the criteria used in evaluation and allocation of available resources.

After funds are committed, division managers make periodic presentations of results of projects to a review committee made up of men experienced in a wide range of areas. An analysis comparing performance to projections is made,

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58 Ibid., p. 37.

59 Ibid.

performance is related to potential rather than to an absolute standard, and an informed review results in the adjustment of policies. The evaluation system provides a two-way information flow in an effective communication system.

The review committee considers the project's effects on the division, as well as on the firm as a whole. Rewards in the form of salary, bonus, and promotion are the result of a continuing evaluation of a division manager's performance, and are determined by members of both the finance committee and the review committee.60

Weston summarizes the dynamic review process as follows:

> First there is a detailed information flow on key decision areas. This provides feedback in the information system loop. Second, the review process represents a monitoring of the data and other forms of information. Third, on the basis of the information, review, and discussion, policies and decisions are adjusted in the attempt to improve performance. Thus, the entire process represents a method of adjusting to changes in the total economy, the industry, and actions of competitors.61

A key point of the system is the fact that a manager's evaluation is not related to the size of the division's ROI, but to the division's potential. This potential is continuously determined by the review process.

The focus of the review process is the difference between a division's actual performance and the projection made by the

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60 Ibid.

61 Ibid., p. 38.

manager. Weston states: "This comparison is more important than specific goal orientation because errors in forecasts in either direction result in misallocation of resources."62

Essential to the dynamic ROI system is an awareness of variables external to the firm, such as economic conditions, cost changes, etc. Such changes are considered in evaluating a manager's performance. The review discussions aid in informed evaluation of performance, and increased understanding through information exchange results in the fundamental objective of the ROI system, which, according to Weston, is to shorten reaction time to change or error, thereby making the firm an effective learning and adaptive process.63

Weston feels that the form of ROI adopted by most firms is the static form, a mechanical method that is easier to install and implement. The criticisms of ROI are problems not inherent in the dynamic ROI system, but rather a result of the static form, which allows for the development of devices for beating the system, incentives in the wrong direction, and results in wrong motivations. By failing to adopt the dynamic elements, such as the informed review process, the two-way information flow, and long-term planning, the result is a modified method unable to satisfy the needs for which it was implemented.

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62 Ibid.

63 Ibid., p. 39.

Weston states that the central error in the application of the ROI system by firms is the confusion of goals and process. Rather than using measures like ROI as instruments for coordination of decentralized divisions, and for engendering healthy processes in the firm, these measures or targets have been misinterpreted as goals and as ends in themselves. Weston summarizes by stating:

> ROI is useful in providing information on every element of the balance sheet and income statement as a basis for further analysis. As a vehicle for a dynamic communication, feedback, and adjustment process, ROI, as well as other management information systems appropriately employed, can potentially be a useful system for developing healthy processes in successfully functioning firms.64

Vancil also stresses the "dynamic" quality of a measurement system in his book on decentralization. He states:

> Speaking dynamically, it is the management process - the way the corporate managers and profit center managers work together - that provides the continuous fine tuning of decision-making processes in decentralized firms.65

In addition to the adjustments here mentioned to make ROI a viable tool for measuring performance, some authors have suggested alternatives to ROI. Some of these will be reviewed in the next chapter.

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64 Ibid., p. 42.

65 Richard F. Vancil, Decentralization: Managerial Ambiguity by Design, Dow-Jones Irwin, Homewood, IL, 1979, p. 131.

CHAPTER VII

ALTERNATIVES TO ROI

Stanley Henrici states that investment dollars are sunk, dead dollars, and, except for the portion of investment that is made up of current assets, these investment dollars were "put into the business at various times in the past, under varying conditions of purchasing power."66 Henrici says that these investment dollars have no relevance to current business, are not a true measure of the resources available to managers for earning a return, and are not affected by, and have no relevance to, current managerial actions.

In place of an ROI measure, Henrici offers as a more sensible alternative a ratio of cash flow over net current assets. This measure would, according to him, reflect management's success in running the business. Although the cash on current assets ratio does not offer a comparison to the cost of money, or information on the amount of fixed assets recoverable

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66 Stanley Henrici, "The Perversity, Peril and Pathos of ROI", Financial Analysts Journal, September/October 1983, p. 79.

through sale or write-off, it is informative and is a good measure of how a division manager is performing.67

Bierman suggests that because many critics consider accounting values less than satisfactory for evaluating the performance of managers, another system based on managerial values could be used for internal purposes. Bierman proposes allowing a group of managers to bid periodically for the assets that are available and that they would like to manage. The information a manager needs to determine the amount to bid would be supplied by the accountant and the economist. The bid that is accepted "wins" the asset, and becomes the base for performance evaluation. A low bid would lose the asset to another manager, while too high a bid will result in difficulties reaching the ROI requirements.

Bierman says this approach would establish an investment base acceptable to both the division manager and top management. He states:

> The ROI measure is improved since the investment base is appropriate to the specific investment and manager being evaluated rather than a series of historical accidents (such as the year of purchase and the method of depreciation). Most importantly, it requires managers to set, describe and quantify their plans for the utilization of the assets. It ties together planning, decision-making, and control.68

One point of weakness often raised in discussions of ROI

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67 Ibid., p. 80.

68 Bierman, p. 46.

is that it may allow short-term manipulation of the profit picture, at the expense of long-term profit. Liao states:

> Since the primary function of accounting is to reflect the facts as they exist, the urgent need is to develop a management system that would prevent divisional managers from hiding poor performance, so that central management can control and coordinate profit center operations on a timely basis...
>
> An alternative method of measuring managerial performance on a long run basis is to use multiple yardsticks for evaluation. Market position, research and development, productivity and employee morale are the probable areas that will reveal the early signs of long run profitability. The accounting reports using key economic yardsticks as well as profit figures to measure performance of the profit center managers should give a better picture of managerial performance on a long run basis.69

Ferrara brings attention to the limitations of accrual accounting, and the need for reconciling the periodic measurement of net income (external reporting) with the concepts of managerial analysis. He makes the point that if incremental and cash flow concepts are used in decision making, they should also be used in performance evaluation. To encourage managers to make decisions that are in the best interests of the firm, performance evaluation techniques must be implemented that yield proper decision orientation.70

Numerous authors feel residual income is a better approach to measuring and evaluating return on investment than

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69 Shu S. Liao, "Responsibility Centers", CPA Journal, October 1973, p. 900.

70 William L. Ferrara, "Accounting for Performance Evaluation and Decision-Making", Management Accounting, December 1976, p. 13, 19.

the ROI ratio. Anthony and Dearden state that although the dollar amount of residual income does not provide a basis for comparison between divisions as does the ROI, there are some inherent advantages in using residual income.

The biggest advantage of residual income over ROI is that all divisions will have the same profit objectives for comparable investments, resulting in more consistent capital investment actions.71

Another advantage of residual income is that different interest rates may be used for different types of assets. Also, interest rates can be varied for different types of fixed assets to take into account different degrees of risk; thus, the system used to evaluate investments can be made consistent with the decision rules that affect the acquisition of the assets. Assets of the same type can be required to earn the same return throughout the company, rather than varying with the profit objective, as occurs under an ROI system. The result is that divisions should act consistently in new asset acquisition decisions. Anthony and Dearden state:

> The residual income method solves the problem of differing profit objectives for the same asset in different divisions and the same profit objective for different assets in the same division. Residual income makes it possible to incorporate in the measurement system the same decision rules that are used in the planning process.72

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71 Anthony and Dearden, 3rd ed., p. 347.

72 Ibid., p. 349.

Dearden states that while the residual income approach is better than ROI, it doesn't solve all the problems of the ROI method. A decision must still be made as to which value should be used in including fixed assets in the investment base. If gross book value is chosen, residual income can be increased by replacing or scrapping assets, without regard to the effect on the company as a whole. With the use of net book value, residual income will increase automatically with the passing of time. New investments will often reduce the residual income of a division in the early years of the investments, even though the investments have an acceptable average rate of profit. Thus, residual income is not a better choice than ROI as a method of controlling investment in fixed assets.73

To avoid the problems that many authorities believe result from use of ROI for performance evaluation, Henderson and Dearden propose a new system. They feel their suggestion is an improvement over ROI, because only controllable factors are attributed to a division manager's responsibility and it immediately signals differences between expectations and performance. The system proposed revolves around a budget of a division's expected contribution to corporate profits for the approaching year, on a fixed-cost and managed-cost budget and on a capital budget.74

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73 Dearden, p. 130-131.

74 Henderson and Dearden, p. 144.

Henderson and Dearden state that a requirement of a multi-divisional company is a financial management control system which achieves the intimate, intuitive knowledge which is possible in a simpler company. This need is described as an inclusive management control system, the purpose of which is to cause the best decisions to be made for the benefit of the corporation as a whole, regardless of whether those decisions are delegated to divisions. This system should, according to Henderson and Dearden: (1) provide relevant information to all managers at each point where a decision must be made; (2) provide a basis for evaluating management performance; and (3) motivate each manager in such a way as to optimize total company performance.75

Henderson and Dearden feel that an ROI-based system can't achieve these requirements because of the motivations stimulated by ROI and because the information produced by ROI calculations isn't adequate. They state:

> By definition, company profits will be maximized when marginal contribution is maximized. Consequently, it is vital that a management control system provide approximations of marginal contributions to decision makers at each point where a decision must be made.76

Henderson and Dearden's proposed solution includes a contribution budget presented each year on a month-to-month basis (expected revenue less variable costs). The divisions

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75 Ibid., p. 145.

76 Ibid.

also submit a managed cost budget, which includes fixed manufacturing costs, marketing costs incurred before the point of sale, research and development costs and administrative costs.

Henderson and Dearden suggest that this managed cost budget be broken down into two parts: (1) the costs needed to maintain the current level of operations, and (2) the cost of increasing or savings from decreasing the current level of operations (these are considered to be managed costs).

Regarding capital expenditures, the cash flows on which the investment proposal is justified are included in the appropriate year's contribution budget. Capital expenditures are a long-term commitment of the corporation's resources and, as such, are better placed in the corporate policy planning system than in the control system.

These three budgets are tied together by including in each year's contribution budget the effect on contribution of the managed cost budget and the capital investment budget.

To implement a marginal contribution system, Henderson and Dearden suggest some areas of control that should be especially strong. First, a good budget analysis group is necessary. They state:

> Since a division's actual contribution is being compared with its budgeted contribution, it is important (a) that the latter represent satisfactory performance, (b) that the various divisional budgets reflect a comparable degree of difficulty, and (c) that variances be analyzed completely and accurately.77

A good capital investment analysis system is also a necessity, along with a good standard cost system. In addition, a profit analysis group at the corporate level should be available to provide information when estimates of full cost are needed.

One advantage of this system is that the issue of settling on a transfer price is no longer a problem, since market prices are used only where a genuine market exists. Another advantage is that in using a marginal contribution budget, the manager is evaluated on actions taken during the period of time being reviewed. Occurrences in previous or later periods won't affect current performance to the same extent as under other approaches. The division manager need not be concerned with changing accounting values, and will be motivated to maximize his division's contribution, which is consistent with overall corporate goals. Rather than management being possibly misled by absolute rates of return, each division will be evaluated based on an objective consistent with its potential.78

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77 Ibid., p. 152.

78 Ibid., p. 156.

The use of the fixed and managed-cost budget will reduce the tendency to take actions to improve short-term profits at the expense of long-term goals.

Marginal costs change as a result of a given decision, and so, will be different under different circumstances. Management may have to use a number of prices if costs are different at different volumes. This may be inconvenient, but it is necessary, for intelligent decision-making, to know the costs at various levels of volume.

One area of weakness in the proposed system may be in that area of incentive to reduce costs. Although Henderson and Dearden admit this to be an area for concern, they state that it is not difficult to make adjustments to compensate for this weakness. They suggest that cost improvements be included as an area evaluated by top management, and possibly use such improvements as a partial base for a division manager's compensation.

Henderson and Dearden do acknowledge the fact that no management control system will be completely effective in all circumstances, including the system they are proposing. Although this system has weaknesses, they can be overcome. In addition, they feel that the possible problems do not create a conflict of interests between divisional and corporate goals; the same does <u>not</u> hold true for problems encountered using ROI.

Henderson and Dearden summarize by stating that a system of management information and control should accomplish two

things, which they feel this system would: first, division managers should be motivated to make the same decisions top management would make, if it could; secondly, it should provide top management with some evaluation of how these decisions are affecting the operation.79

Anthony and Dearden state that by evaluating profits and investments separately, divisional managers' accomplishments will be consistent with top management's hopes and a division will obtain maximum, long-run cash flow from the investments that it controls, and will add investments only when they will provide a net return in excess of the company's cost of providing that investment.80

Some companies choose not to create investment centers because of the problems mentioned previously. As an alternative, controllable assets are assessed an interest charge, and fixed assets are controlled separately.81 By charging interest for resources tied up in receivables and inventories, divisional managers are motivated to monitor closely what they can control; this also measures the cost of resources committed to these areas. Investments in fixed assets are controlled by the capital budgeting process, and by post-audits to evaluate the results of investments.82

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79 Ibid., p. 159

80 Anthony and Dearden, 3rd ed., p. 351.

81 Anthony and Dearden, 4th ed., p. 294.

82 Anthony and Dearden, 3rd ed., p. 351.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine whether ROI is a viable and effective tool for planning and control. Although there are some strong arguments for using ROI, authorities have also pointed out weak areas that can and do cause problems for firms that use ROI as part of their planning and control system.

ROI is a single comprehensive figure, influenced by everything that has happened which affects the financial status of a division. No comparative alternative for the ROI ratio has been found, and because ROI is better understood than other alternatives available, it is commonly used. It provides a basis for direct comparison between divisions, and can be calculated by external users from information found on financial statements.

ROI is a popular measurement tool, but has been criticized for oversimplifying a complex decision-making process and for influencing division managers to make actions that are not in the best interests of the firm as a whole.

A major portion of the criticisms of ROI revolve around

the fact that ROI is based on accounting information, which results in arbitrary, inaccurate figures. The resulting ratio is also arbitrary and inaccurate. Using the various alternatives acceptable in accounting causes significant differences in the final ROI measure. These alternative accounting methods allow for manipulation to get desired results.

Using ROI as a measure of a manager's performance raises the possibility that a manager will sell assets before their time or refrain from investing in new facilities in an effort to "beat the system", to make himself look better in the evaluation process. Another weakness of ROI is that it only considers one period in time, with no consideration of past or future periods. It is also difficult to set objectives that are equitable bases for evaluation of a manager's effectiveness.

This author believes these weaknesses are real, and many of them are common to both ROI and alternatives to ROI. Top management must be aware of, understand, and be able to work around these weaknesses to the advantage of the firm as a whole, while keeping division managers motivated and happy.

A major point of difference among authorities of ROI is that regarding the composition and valuation of the asset base. Some authorities argue for including only those assets over which a manager has control; others support using all assets attributable to a division, or some combination in between these two. This author believes that by including in the asset base only those assets over which the division

manager has control, the manager will be influenced in a positive way because he is only being evaluated on his own decisions, and not being held responsible for the decisions of someone else.

Discussions also revolve around the methods used to value the assets included in the asset base. The more common alternatives are gross book value, net book value and market value. Gross book value includes assets in the investment base at the original cost of the assets. Net book value is computed by subtracting accumulated depreciation from gross book value. Market value yields an asset base consisting of current dollars including a built-in mechanism for making adjustments for price level changes.

Net book value is the most commonly used basis. Each alternative has weaknesses that authorities argue make them inadequate bases for evaluation of managerial performance.

This author prefers market value as a basis for asset valuation because it provides the most current and most realistic value of the assets. However, the cost of valuing assets using this method may be higher than the benefits received as a result of this valuation. As long as users of financial information are aware of alternatives used to compile this information and are knowledgeable enough to make the adjustments required to make meaningful comparisons and decisions, no one method or alternative is better than another.

Instead of ROI, some firms use other alternatives, such

as residual income or ratio of cash flow over net current assets. Residual income is the next most commonly used alternative to ROI. It has advantages in that different rates of return can be used for different types of assets, and the same asset can be required to earn the same rate throughout the company. However, residual income has the same problems as ROI regarding investment base composition and valuation. In addition, because of the lack of a common denominator, the means of comparing one division with another is not available with residual income, as it is with ROI. Also, when residual income is used, top management must decide on the adequacy of an absolute amount of budgeted profits.

The objectives of the management team should determine which measure would best satisfy their needs. Of course, the limitations of each measure should be studied before choosing one over another. Some firms use both ROI and residual income, to get a more comprehensive view of a manager's effectiveness.

If users of the ROI ratio are made aware of the valuation methods chosen and the composition of the components of ROI, and are aware of the limitations inherent in accounting systems, this author believes that there are no right or wrong alternatives. With an understanding of the limitations and alternatives chosen, adjustments can be made for inherent weaknesses and meaningful comparisons can be made. Making clear the assumptions used, the purpose of the measure, and the factors used in combination with this measure to arrive at

an ultimate evaluation will eliminate any misunderstandings about what the measure means, how it was derived, and how it can be used.

This author believes ROI should be used as a stepping stone rather than as an ultimate objective. It should be used in combination with other control and planning tools to produce an accurate, equitable and comprehensive measure of a division manager's performance. A function as important as this should not be based on just one factor. Other areas to possibly consider in evaluating a manager's effectiveness are product quality, potential, market share, labor turnover, productivity, new product development, timely delivery, etc. If ROI is used as part of a dynamic process, and is one of several variables used to evaluate a manager's performance, the impact of the inherent weaknesses will be reduced, and the result will be an equitable, comprehensive evaluation system.

If an ROI measure is meant to be a static, single comprehensive measure, then it must be used with an understanding of the limitations inherent in this application of the concept.

ROI is a viable and effective technique for planning and control when used in combination with other relevant factors, and when adjustments are made for limitations inherent in the information used to derive it.

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