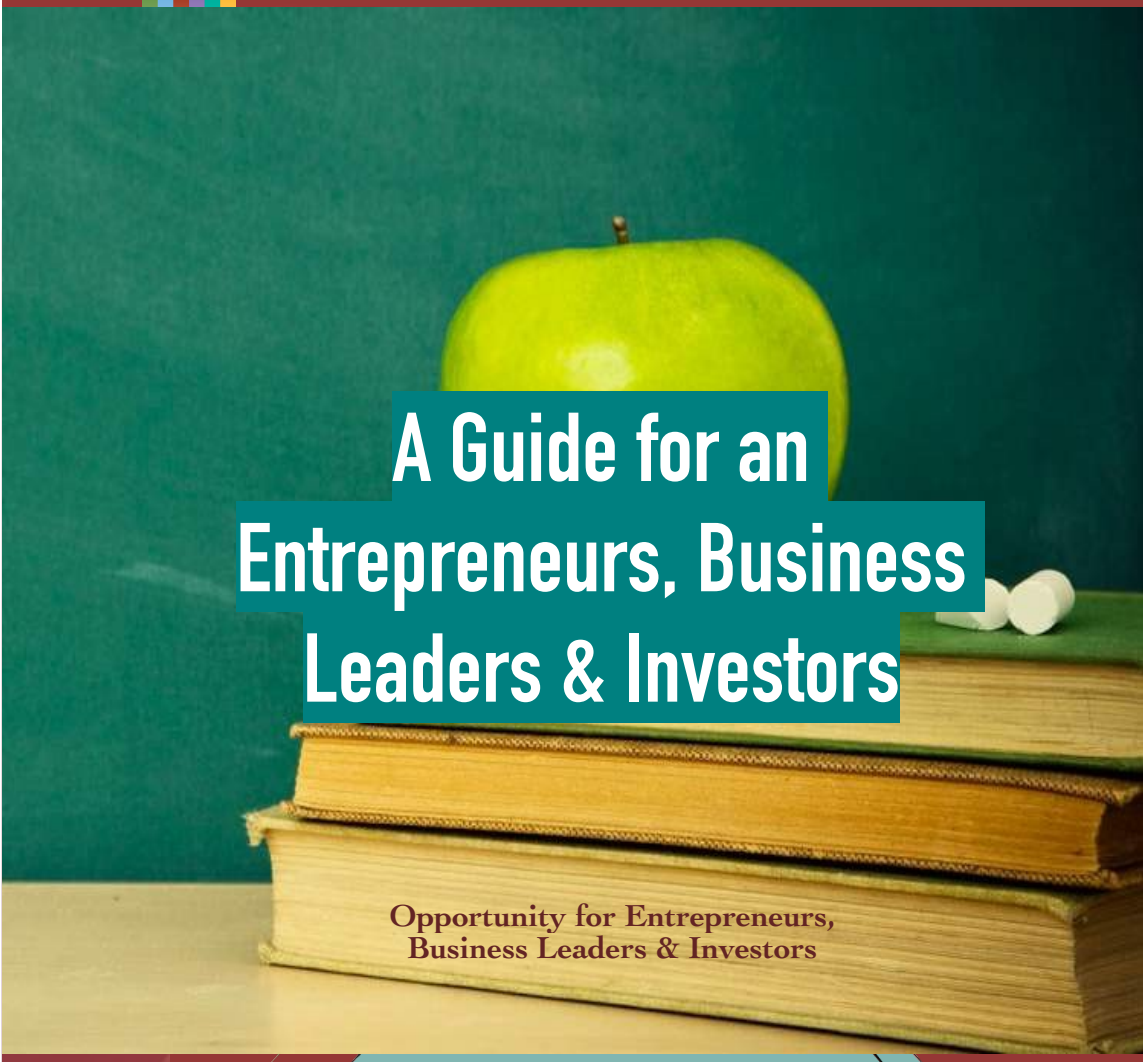


# A Guide for an Entrepreneurs, Business Leaders & Investors

Opportunity for Entrepreneurs,
Business Leaders & Investors

## FINANCIAL-ECONOMY ANALYSIS

www.ticgl.com

Tanzania Investment and Consultant Group Ltd

# THE CHALLENGE OF FINANCIAL-ECONOMIC DECISION-MAKING

The business world was caught up in a still-growing state of euphoria over the high technology sector and especially the "dot.com" phenomenon, which promised to revolutionize the way business was done, whether business-to-business or business- to-consumer. There was also the impression, actively promoted by many commentators, pundits and financial professionals, that a different era of analytical practice had arrived. It was argued that many of the "old" ways of judging performance and business prospects would no longer be valid, as market valuations of scores of new or emerging businesses skyrocketed. However, when the market bubble contracted sharply, beginning in the Spring of 2000 and into the first year of the new millennium, 2001, there was a great deal of soul searching among financial professionals and investors alike, all trying to explain the sharp reversal and to speculate on how it was possible that so many judgments and expectations were not founded in reality.

As a way of introducing the range of analytical concepts and tools contained in this article , we'll attempt to characterize some of the key attributes of the "new economy" phenomenon and draw conclusions about the implications for financial analysis. In fact, we'll argue that the "basics" of financial/economic analysis and thinking have never changed. Many of the excesses of the period might have been prevented if even the most elementary economic principles had been followed.

We'll put into perspective the constructive role of what we call the economic manager, a quintessential requirement for sustainable success in businesses large and small. This will also be an opportunity to comment briefly on the practice of financial/economic analysis in operating and assessing a business. Finally, we'll characterize the key attributes of the value-creating company, the successful enterprise with a robust business model and a sustainable strategic advantage, which fulfills and even exceeds expectations of the investing community.

*"For many years the purpose and contribution of this TICGL Firm have been to help make financial/economic analysis a practical, understandable and usable process for managers and analysts, and we argue with conviction that applying these concepts to both established and emerging businesses has rarely been more important than now."*

As we area in this millennium, continuation of our strong economic performance in the fast-moving business environment will depend on how well internal decision-making processes support and extend the new technologies and productivity improvements which, after all, have helped create a decade of record economic expansion. We believe that the decision criteria for these processes should be, and will remain, based on sound economic principles, on the use of cash flow reasoning, and on well-defined trade-offs involved in decisions large and small. In other words, we are talking about applying solid economic management.

## Lessons for the 21th century of business

As we are in 21th Century of doing business, two sets of issues about financial/economic analysis principles and practice offer themselves for discussion as an introduction to this article . The first is the concept of the so-called new economy, and the second is the applicability and relevance of time-tested methodologies and tools in the years ahead.

### The New Economy

Much has been written and said about the impact of new technologies, of the information revolution, and of the Internet on our economy, not only in Tanzania , but worldwide. There is no question that the changes in information technology and communications capability have drastically altered both actual and potential ways of doing business. For example, instant access to inventory status at both the customer and manufacturer/supplier levels, and creative linkages through order processing and outsourcing have not only reduced funds tied up in inventories, but have also aligned these companies much more closely with actual demand patterns. The ability to customize products and services has been greatly enhanced, while lead times have shrunk in the supply chain to unheard of low levels. Information technology has been the key to achieving much more effective processes throughout the business world, and once they are properly selected and managed, the processes of data access, storage, application and exchange become much easier. The Internet has become the facilitator for instant sharing of information, and for linking entities with common interests and needs. Beyond that, the Internet promises to become a preferred processing medium for countless services, including accounting, data storage, analytical software, investment analysis, and others, offering

instant access from any point in the world. Not only can high technology companies take advantage of these capabilities, but the potential for productivity enhancement extends to even the most basic of industries and services.

The examples cited above, as well as new applications not yet developed, can have a significant impact on both operational and strategic conditions in most industries and services. The business models of existing companies have to be adjusted to reflect the capabilities of these developments, to the extent that they apply. Likewise, companies directly engaged in pursuing such emerging and fast- paced opportunities must develop business models that are likely to succeed, even though they find themselves on the leading edge of new developments that are not yet fully understood. Thus the new economy represents both an opportunity and a challenge to business management.

What are the implications of these trends for business financial analysis and economic decision-making? Clearly, the pace of business activity and the speed with which opportunities emerge has accelerated greatly, resulting in the need for quicker analysis and decision-making. This means, among other things, designing information gathering and interpretation processes to ensure that appropriate decision-making data are available when needed. It also means that internal decision practices need to be rationally attuned to these shorter time frames. All these issues can be addressed in methodical ways.

## Some Key Questions

However, several business concepts have emerged in the recent past that give ample reason to pause and consider whether they represent a dose of wishful thinking. These concepts largely apply to the new and emerging businesses of the new economy, but also have cast a shadow over more established companies. We'll look at the most important ones briefly:

① Successive advances in innovation guarantee success.
② High volume position is the key to competitive advantage.
③ Profitability is an old-fashioned concept.

***Innovation.*** The idea that successive waves of innovation are the main driver of long-term performance in a new or emerging business—or an existing one, of course—appears to be sound when viewed in the abstract. Clearly, innovations in technology, processes, and methodology have occurred, sometimes dramatically, in the Tanzania and world economies. Whole new businesses emerged over the past two centuries as advances in manufacturing, transportation, services and communication came in sometimes rapid, successive cycles, speeding up exponentially in the past several decades. But the

important lesson from economic history is that innovation alone does not guarantee success to the individual enterprise, whether pioneering or merely riding along with the changing opportunities.

It is here that the interpretation of the new economy and its innovative aspects began to conflict with basic economic reality in the past several years. As high-technology and "dot.com" enterprises attempted to seize the potential of innovative advances, basic notions of achieving positive cash flow and profits were cast aside. Instead, the argument was: "As long as we keep innovating and are doing it faster than others, we'll have positioned ourselves to warrant the confidence of our investors." It was this argument that contributed to the phenomenon of initial public offering prices soaring to unprecedented heights, giving new and untried enterprises market valuations that rivaled those of long-established, successful Fortune 100 corporations. The magic lure of innovation became a substitute for economic performance, and rampant speculation rather than thoughtful analysis drove venture capitalists, investment bankers, analysts, and individual investors to participate in the ride to quick riches.

Forgotten was the fact that where a great many innovators try, only a very few succeed, and they succeed only because they achieve acceptable financial results within a time span over which investors are willing to commit themselves. Ignored was the fact that results depend on the ability to deliver products and services which customers are actually willing to buy at adequate prices. One only has to think of the number of automobile companies that were started at the beginning of the automotive age, and how many survived, despite technical innovations made by many firms that no longer exist. The reason the innovating company succeeds is because it is built on sound, sustainable strategies, effective management, and economic decision-making, enabling it to seize and exploit innovative opportunities better than its rivals. If successive innovations come along, the successful company will repeat these principles. Thus it is not innovation alone, but the consistent and difficult application of sound strategic and economic management that brings about eventual success. And the underpinnings of such successful strategic and economic management are sound financial/economic analysis and its interpretation–the very principles and tools we'll discuss in this book.

***Volume position.*** The second concept we wish to highlight also appears sound when viewed in principle, namely, that obtaining a commanding volume position in the market as early as possible is a critical ingredient of successful strategies. This can lead to lower costs, more effective marketing, logistics, synergies and lasting competitive advantage. General Electric, one of the most successful long- run value builders for decades, preached and practiced Jack Welch's mantra of being No. 1 or No. 2 in any of the businesses in which it chose to engage and continue. When it came to the new economy, however, the same principle was often applied without much thought being given to one critical economic requirement: the trade-off between the outlays

required to establish position, and the economic benefits to be derived over time from this investment. In the "dot.com" sector of the economy, the principle of large scale and volume was interpreted as, for example, getting the most "eyeballs" to view one's web site, or building up the largest customer base possible, using give-away prices for products and services.

As "clicks competed with bricks," little attention was paid to the size of the requisite outlays on advertising, promotion, and particularly the often massive in- vestment in fulfillment infra-structure, with its related operating costs. In extreme cases, the spending of hundreds of millions of dollars of shareholder capital or borrowed funds was shrugged off as "necessary" to build scale, to get ahead of several other competitors and reach the dominant position. There are many examples of such new business models, established in the hope of reaching commanding volume positions.

Expectations about positive operating results kept being postponed year after year in many of these situations—with investment soaring and operational contributions to the bottom line remaining negative. Cash flows consistently remained a one-way street. At some point of reckoning such companies faced bitter choices: trying to raise additional funds under prohibitive conditions, selling out, or folding up altogether. The expected positive trade-off between investment and expectations had not materialized, and shareholders were penalized by collapsing share prices.

We believe that one of the main reasons the trade-off failed was the lack of importance, or even outright disregard, with which management viewed the use of hardheaded financial/economic analysis. Successful companies generally subject their new initiatives to various forms of "no nonsense" testing, carefully weighing ranges of potential investment against ranges of potential outcomes. Even elementary analysis of this kind, when applied to a number of the new "dot.com" business models, suggests that economically recovering the kinds of investments necessary requires growth rates, market positions and operating results that far exceed any set of reasonable estimates an objective observer might make about the potential scale and profitability of the business sector in question. The counter arguments made by some suggested that because these market opportunities and business models were so new, estimates were essentially blue- sky guesses, and one could not afford to lose time in becoming Number One. As we'll discuss in the later portions of this book, however, uncertainty about the future is a common theme in just about all business propositions, and the issue is one of carefully scoping the likely dimensions, and assessing the risks involved as the analysis proceeds. In the case of the new economy business models, the rush to gain position and to be the first to benefit from it, did overshadow economic principle in the eyes of analysts, venture capitalists, and

investors. The hurry to position oneself for a huge run-up in share prices became a speculative race where caution was thrown to the wind.

## For an Entrepreneur, Business leader & Investor

Given our emphasis on basic economic principles and the time-tested approach to financial/economic analysis, we prefer to think of successful at all levels as economic managers. This appellation certainly doesn't imply requiring a degree in economics, or a stint in an economic consulting firm. Instead, we define the economic manager as a person operating from a mind set of deliberate economic trade-offs, applied to every decision made. This mind set always leads to the question: "What are the ultimate cash flow benefits to be derived from this action, and what are the cash flow commitments involved–is this trade-off appropriate, given the risks involved?" There is a degree of basic common sense about this point of view, because whether knowingly, instinctively, or even subconsciously, just about all individuals make such trade-offs in their daily lives. We all have a sense of weighing value received for value given in our purchases or investments, or in reverse, of value given for value received when we sell assets, or our own services. It's only the degree of understanding, quantification, and analytical discipline applied in practice that distinguishes the economic manager from the average individual, and we'll discuss the key attributes in a little more detail.

### Understanding Business Economics

The economic manager has a very clear understanding of the business economics of the company and its parts, and especially of the segment he or she manages. This understanding begins with the dimensions and implications of the business model used, including customer needs and attributes, the supply chain, competitive positioning, and the company's operational design and effectiveness, all within the larger societal setting. It extends to insights about the specific contributions and requirements of the various stakeholders, and the obligations the organization owes them.

With such solid background knowledge the economic manager is in a position to identify and prioritize key value drivers that are essential to the long- term success of the business. A value driver can be as basic as a sustainable cost and/or quality advantage due to a patented process, a protected resource, or a unique set of operational skills. It can be as intangible as the technical expertise of a product development team or a group of service providers, or it can be an attribute of the business model that is hard for others to emulate. Positioning on the preference spectrum of the customers, such as brand name, or enjoying the advantage from an installed base of products or services can be value drivers. The point is, most businesses can identify one or more of these, and if properly addressed,

managed, and measured they can lead to a tangible advantage or at least acceptable results. In the end every value driver is a lever for improved cash flow performance, and the economic manager will be very familiar not only with the nature of the value drivers impacted by decisions, but also the trade-offs to be made in using the drivers well. Thus the economic manager views the business not only as a complete system, but also as a finely tuned assembly of interrelated parts. The economic manager knows where the priority areas of attention are and how to enhance them, and understands the business model and its parts sufficiently to have a positive impact through carefully analyzed and executed decisions.

Parallel to this understanding is the economic manager's comfort with the decision-making process itself. The mind set is oriented toward clearly defining the issue at hand, establishing the appropriate alternatives, identifying which information and data are relevant for the purpose, and judging the analytical results from a long-term viewpoint of value creation. The economic manager is sufficiently familiar with information sources within the company, and works in close collaboration with financial and other staff persons to make sure that relevant data are at hand for sound analysis and judgments. There's sufficient understanding of such data to know what to ask for, to judge whether data or analyses provided by others are truly relevant, and to hold one's own in discus- sions with specialized personnel whose job it is to delve into the details of analytical data, constructs, and tools. We're talking about a level of practical insight that stops well short of the intricate specialization implicit in accounting, economic analysis, and planning expertise, but which is pronounced enough to insist on and achieve justifiable approaches and answers. The economic manager thus actively and successfully merges practical line experience with effective use of available staff capabilities.

## Appropriate Economic Tools

Specifically, the economic manager knows the major tools for economic analysis well enough to be comfortable with their application and the interpretation of the results achieved. This is part of a deliberate effort to take responsibility for the process, and to draw in assistance from specialized staffs as needed. It's a natural aspect of managerial leadership to be cognizant of the need to apply the best techniques whenever necessary, and to base the choice on the cost benefit trade-off involved in such an effort.

Once appropriate analytical tools to prepare the groundwork for a decision have been identified, the role of the economic manager becomes that of decision- maker—one who guides the process, probes for the appropriate information, and challenges the preliminary results and insights presented by staff, until a level of comfort is reached with the output of the analysis. Practicality is paramount at all times, as is realism stemming from the collective experience of the players involved.

The economic manager embracing such an approach will be in a

better position to interpret and argue the case for a significant initiative with the ultimate decision-makers, whether senior executives or even the board of directors. The manager's involvement in the framing of the issue, the choice of tools, and guidance of analytical effort leads to greater effectiveness not only in the manager's ability to handle decisions large and small, but also, by virtue of the manager's leadership, in the organization's ability to operate the business by appropriate economic criteria and by making the necessary trade-offs.

## The Practice of Financial/Economic Analysis

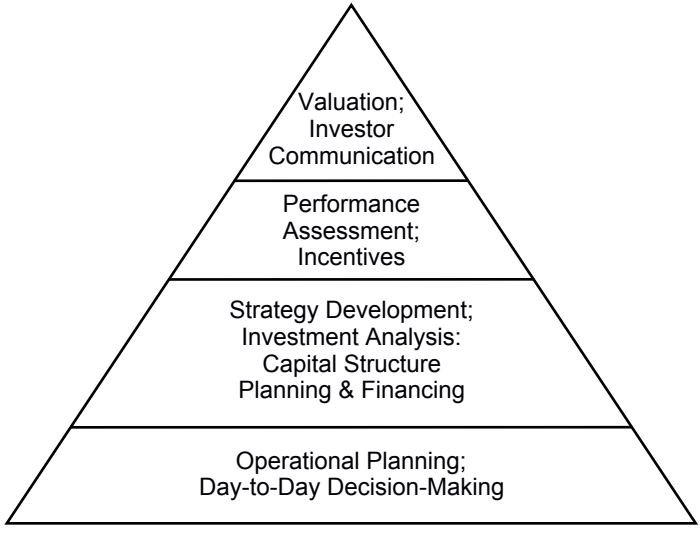
The financial/economic analysis sponsored and used by the economic manager can be viewed within a broad hierarchy of decision-making needs. The diagram in Figure 1–1 shows four key areas in the typical business where financial/economic analysis is a necessary ingredient. This conceptual pyramid rests on the broadest area: day-to-day decisions and operational planning. It successively rises via strategy development, investment analysis and capital structure planning, on to performance assessment and incentives, and finally to valuation and investor communication. Each of these areas contains challenges and issues in the practice of analysis and decision-making that the economic manager must address.

### Day-to-Day Decisions and Operational Planning

One of the most important areas of applying basic financial/economic analysis is the support of day-to-day decisions made by managers and employees. We're talking about the operational part of the enterprise, in which strategic direction and operational plans are translated into action. Despite its importance, analytical practice in this area often tends to be the least developed, because the pressure of daily activities foreshortens the time for reflective thinking about operational is- sues and trade-offs. Too busy to ponder the impact of a decision on the bottom line, the harried manager or employee acts on the spur of the moment. Such seat-

FIGURE 1–1

Areas for Financial/Economic Analysis



of-the-pants decision-making can become the ingrained way of doing things, un- less the company has instilled a basic sense of decisional discipline and provided guidance through simple but useful decision rules and processes. The successful company will have an integrated set of metrics and criteria, and provide information that clearly supports intelligent decision-making.

Without such guidance, non-economic and damaging choices such as spending funds because there's room in the budget or in the allowable head count become decision criteria. Operational effectiveness should be a function of sound trade-offs, with careful cost management and close attention paid to the quality and efficiency of production or services rendered, and with constant vigilance in serving customers through sustainable pricing, credit, and support actions.

While this book contains a large number of the key tools and measures to assist in making such trade-offs, the issue we're addressing here is larger than availability of tools. We're talking about a mind set, an organizational climate in which managers and all employees are encouraged, indeed challenged, to approach their jobs and the daily decisions they make with a rational trade-off mentality. Before making a decision, answers to questions such as "Is this really a necessary outlay and will it bring in more cash than I will spend?" or "Should I in fact spend more because I expect an opportunity to improve service will pay off in higher profit contribution?" should be second nature, as would the deliberation: "Should I engage in this activity, or is it more economical to have it performed by an outside service?" Such thinking might run counter to a corporate culture which does not encourage employee initiative and "thinking outside the box," but will be a natural consequence of the leadership of the economic manager we discussed earlier. It's reinforced by a combination of training and specific decision support, and clearly communicated expectations at all levels.

## Supporting Strategy Development

The practice of financial/economic analysis is generally more developed in this area, as it is subject to more senior management scrutiny and authority because of the size and implications of the decisions made. Also, support by qualified internal staff or outside advice is often available. Yet, as we discussed earlier, there are significant exceptions to this in new economy companies; but even old economy businesses are certainly not uniform in the quality of analytical processes they em- ploy in these areas.

The analysis of strategic alternatives and the commitment of resources to in- vestments involves a complex set of economic trade-offs, viewed within a competitive framework. The ultimate goal is to find areas of activity that can be performed with a sustainable competitive advantage. The major challenge lies in establishing the key variables involved, making estimates of the risks surrounding them, and ultimately expressing the likely alternatives in the form of expected cash flow

patterns. This is a difficult undertaking, where the problem is not so much the eventual application of the economic tools, but the development of a coherent structure of the proposal, its relevant alternatives, and all of its key variables and the risks expected. It is here where judgment and interpretation are critical, that is, clearly defining the opportunities and choices to be made, and thinking through all the implications of a potential decision on the existing organization, on the customer base, on the competitive situation.

It is also here where experience shows that profit expectations can be overblown, that the difficulties of implementation can be underestimated, and that market acceptance of an initiative might not materialize. This is not only true when introducing a new business model, as we mentioned, but is especially prevalent in mergers and acquisitions, which more often than not fail to create value be- cause economic analysis becomes secondary to bidding contests and resultant overpricing. Economic managers will insist on creating and assessing a range of risk-adjusted summary cash flow estimates for any strategic change, perhaps based on different scenarios, as the basis for weighing the strategy's ultimate economic impact and value contribution.

The analysis of the current and prospective financing structure similarly involves many economic trade-offs, integrating the degrees of risk connected with various financing options with their costs and the long-run viability of the capital structure. Key influences are the rate of growth envisioned in the business, the trade-off between internal growth versus acquisitions and partnering, domestic versus global operations, and the nature of the main business activities themselves and their attendant risks. None of the choices of funding sources are obvious, and the economic impact on the business as well as on share values must be judged carefully. The role of informed judgment in gauging risks versus rewards, while not fully quantifiable in itself, is a critical requirement in, for example, avoiding credit problems, or financing constraints that can interfere with strategy.

In the end, the role of financial/economic analysis in strategy development and financing should be seen as an integrative force. Applied properly, it leads to testing as closely as possible the planned strategic structure of investment and necessary financing against the goal of earning above the cost of capital, and creating shareholder value.

## Performance Assessment and Incentives

The main issue in this area is the relevance of the measures to the goals set, and the need to establish not only indicators of deviation from desired norms, but also to interpret these indicators so they can be used to reinforce value creation. It's an area where the quality of the concepts and tools employed varies widely in both established and new companies. If the relevance of measures employed has not been clearly established in an organization, performance data can be meaningless, or subject to manipulation. "Gaming" the budget or the business plan is an ever-present temptation. The tools for analysis, and the judgments required for interpreting performance vary widely, whether one measures performance from outside the business, which is the task of investors, creditors, and suppliers, or internally, which is a necessary function of managing the various levels and segments of a company.

One of the critical challenges in evaluating the performance of a business from the outside is to interpret the results as expressed in financial statements. These are the most readily available data for publicly held companies. But the var- ious ratios and measures that can be applied to this information are subject to limitations inherent in the financial accounting process and to a number of choices management has in applying its rules and thus "managing" the reported results. The outside analyst endeavors to measure operational effectiveness, the success with which capital has been employed, and the risks represented by the capital structure and its parts. Measures and their meaning vary by industry segment and type of organization, and the challenge is always to derive insights from relevant comparisons to other companies or groupings, a difficult task in most instances. The ratios and relationships used as measures are easy to derive, but their effective use depends on the skill of the analyst in interpreting trends and recognizing exceptions and changes due to management actions or accounting policies. The sophisticated analyst is able to look beyond accounting results to make an evaluation of cash flow patterns underlying the data made available, as we'll observe frequently throughout the book.

Performance evaluation within the organization benefits from access to more detailed and current information, which usually goes far beyond publicly re- leased data. But here the challenge is to develop measures that represent the cause and effect between decisions made and results achieved, a challenge not fully ad- dressed in many situations. A vast range of statistical data can be used to measure effectiveness of operations, many of which are physical in nature, such as output data, failure rates, yields, customer contact frequencies, timeliness information, and project completions. Intangible data such as customer satisfaction, employee attitudes, and community feedback are important supplements. The point we're making is that financial performance begins with the roots of operational activity, and evaluating financial ratios and measures must rest on an understanding

of these activity-based indicators. In well-managed companies there is a close connection between physical and financial indicators, and performance evaluation is made with this total view of the operation. This recognizes that accounting trans- actions and their compilation provide at best a partial view, and that financial measures have to be supplemented with judgments about organizational activity.

When it comes to internally assessing the effectiveness with which capital has been employed by various parts of the organization, accounting measures tend to loom larger. Rate-of-return measures and other criteria that we'll discuss represent a summarized, periodic view of net benefits, usually after-tax profit, versus the recorded resources employed. Here the potential deviation from economic results is larger, and many companies are attempting to move closer to the cash flow measures we'll discuss in the latter portion of the book. There has been a steady evolution in these processes, in parallel with a better understanding of the economic dynamics of the securities markets.

Incentives to enhance short- and long-term performance are the opposite side of the performance evaluation challenge we just discussed. We won't deal directly with the complex issues of designing incentive programs, as this is a subject de- serving full treatment by itself. However, the principles of decision-driven management we support, the focus on cause and effect in making appropriate trade-offs, and the need for long-term cash flow generation will echo through a well-designed incentive system. Operational, largely activity-based incentives for employees are less difficult to design, because of their direct, statistical underpinnings.

More challenging are higher level finance-based incentives, which due to their more encompassing nature and usual reliance on accounting data, can introduce problems of interpretation and opportunities for "gaming." How periodic revenues are recorded, and expenses are recognized can affect the outcome of such measures and the resulting payout to the manager. There is also the issue of the time horizon over which incentives are established. The higher the level of management, the more emphasis should be given to long-term cash flow generation, to avoid the temptation for making short-term trade-offs that damage long- run value creation. Finally, there is the always present issue of how high to set the standard to ensure some degree of excellence and significant effort, without making the incentive unachievable. In short, incentives represent a form of using financial/economic analysis heavily overlaid not only with challenges of interpretation but of human motivation and proper rewards.

## Valuation and Investor Communication

The most integrative aspect of financial/economic analysis is the area of valuation and investor communication. It is here that some of the most complex tools and methodologies are commonly employed, and it's also the area where much of the theoretical and empirical research of the past two decades has been focused. As we'll discuss in the final chapters, valuation is a function of the expectations held by the company's existing and potential investors, and by the securities markets in general. There is a two-fold challenge involved in this analytical area. First, out- side analysts and managers alike must understand and properly apply the principles of valuation we'll discuss. Second, the story of the company's performance and future expectations has to be made available and explained—obviously within the legal and regulatory constraints to which such communication is subject—in a way that reasonable assumptions can be derived from this information.

Because valuation by necessity is a future-oriented process, existing performance must be projected over a time horizon befitting the nature of the business and its industry segment. This is best done in a cash flow framework to which various tools are applied to derive ranges of valuation, although short-cut methods can of course be used for "ballpark" estimates. Thus the challenge is quite daunting: It be- gins with understanding the business model and its key attributes, an appreciation of the strategies in place and any changes expected, an assessment of key performance criteria, a feel for the competitive realities and the future environment of the industry, and a judgment about the position and likely success of the company within this environment. We again are faced with a systems view of financial/economic analysis at the highest level, which integrates the insights about all aspects of the business under review. The external communication challenge similarly requires a systems view of the company's performance and prospects. In both the analytical and communications areas a fully integrated approach is still lacking in the majority of corporate situations, and we began this chapter by saying that there was an obvious hiatus during the excesses of the dot.com era. The rediscovery of basic economics is coming none too soon for this important area of analysis.

# The Value Creating Company

While we've already brought up most of the requirements for creating economic value through economic management, let's reflect briefly on what the key attributes of a successful company are. In our view, the value creating company can be defined as an organization in which management has achieved integration of the interests and actions of its key stakeholders, that is, shareholders, managers, employees, customers, suppliers, creditors, and the community. This integration is based on managing, through sound decision-making, the business system we'll describe in Chapter 2, and the many economic trade-offs

implicit in this system. Such a company achieves, as nearly as possible, an optimization of the system's performance over time, driven by a sound business model, strategies with a sustainable competitive advantage, and superb operational execution, supported by an appropriate, balanced capital structure. This should result in achieving positive cash flows as well as expectations of future cash flow patterns that exceed the cost of capital. In turn, this will provide superior returns to shareholders, superior re- wards for managers and employees, excellence in customer satisfaction, first rate performance and loyalty from suppliers, and superior credit relations. Financial/economic analysis properly applied plays a key role in all of these aspects, and we'll discuss some of the underlying requirements.

## Relevant Decision Information

No sound decisions are possible in a business setting without relevant information being available to the decision-maker. This axiom applies to all types of decision situations, whether large or small. The value creating company has established in- formation sources and access to this information to enable persons at all levels to make rational trade-offs, whenever faced with an issue to be decided. This re- quires several supportive management practices:

- Sharing of relevant information.
- Decision support by financial staff.
- Distinction between accounting and economic data.

***Sharing.*** The first practice is a deliberate management attitude of sharing. Too often old economy companies have fostered a climate in which information and knowledge is limited to those "in the know," while new economy companies of- ten have been too busy to even develop appropriate information flows. The principle here is one of delegation, of entrusting people at all levels with relevant data that will help them make sound decisions in the interest of value creation. This fits well with the modern management concepts of flat organizations and empowered employees. Empowerment begins with knowledge and is expanded by targeted training, which includes understanding the nature and relevance of financial/economic data, and is reinforced by a climate of trust.

***Decision support.*** The second practice defines the support role of financial staffs in the organization. If sharing of information and its appropriate use is to succeed, the financial staffs must be proactive, because they are the basic supervisors of transactions and data collection, sponsors of internal information and accounting systems, and guardians of financial information. Again we're describing a mind set, a shifting away from the primary attitude of control and stewardship—which historically has been the orientation of accounting professionals—to an attitude of business advisor and facilitator of decision support. The

significance of this shift cannot be overemphasized. The value creating company looks upon its qualified financial staffs as business consultants, work- ing closely with the line managers—our economic managers—and bringing to bear their insights and access to information in order to empower the decision- makers up and down the line to make appropriate trade-offs. This is an educational function as well as a support role, because even when information is shared, it's necessary to explain the meaning and relevance of the financial/ economic data, and to assist the non-financial personnel in the appropriate use of decision criteria and tools. At the same time, as we observed earlier, non- financial managers must not simply delegate the analytical aspects of their economic decisions to the experts, because understanding the principles involved as well as being clear about the nature of the trade-offs is part of the overall effectiveness of the enlightened modern manager.

***Accounting versus cash.*** The third practice is related to the first two, and also echoes an important theme mentioned earlier and carried throughout this book. The value creating company has managed to draw a clear distinction be- tween the two points of view with which financial information is gathered and interpreted, namely, the accounting viewpoint and the economic decision view- point. The blurring between these two, which is too often found in financial analysts' commentary and security analysts' reports, can lead senior management to pursue results in accounting terms, such as managing quarterly earnings results and expectations, when in fact cash flows are increasingly being recognized as the real key to building value. The value creating company encourages internal decision-making on the basis of managerial economics and cash flow data, tasking the financial staffs to develop decision rules and decision information, and provide support that clarifies the economic trade-offs to be made. In this process, such a company certainly doesn't ignore the requirements of financial accounting and reporting, which are still the mainstay of published financial information. But the company actively promotes, in parallel fashion, the view of its performance in cash flow terms, and embraces appropriate shareholder value techniques of the kind described in the final chapters of this book. As it sends clear signals to its personnel that decision-making must be economic and cash trade-off oriented, it also requires that the accounting implications are to be recognized as a separate view. At times, divergent near-term accounting impacts might have to be explained in external communications, if a strategic move is at stake which could depress near-term reported earnings but promises strong cash flow results over time. The value creating company does this as a matter of course, confident in the integrity of its decision-making processes, and communicating clearly why financial accounting cannot express the true economic results, given its different orientation.

In short, the value creating company has established a corporate climate in which all decisions and all actions are viewed as economic trade-offs, and which fosters access to and sharing of carefully developed, relevant information, deci- sion rules, and tools in a collaborative fashion. Because the common objective is value creation for the long term, such a supportive climate for decision-making is the vital underpinning of success.

## Economic Incentives

One of the critical attributes of the value creating company is the degree of attention paid to providing appropriate near-term and long-term incentives to its managers and employees. As we mentioned earlier, there should be a true cause- and-effect phenomenon surrounding incentives and results. If a company's incentives are based on some of the common, broad accounting measures such as return on equity, or return on assets, or even earnings per share, there is a real risk that decisions, large and small, will suffer from the economic disconnect and time lag inherent to these measures, as we'll discuss in the final chapters of this book. While the complex subject of management incentives is not one of the areas we'll cover, we believe the principles involved are the same basic economic choices that affect financial analysis and planning.

Therefore, both near-term and long-term incentive programs should reflect a careful set of measures designed to reinforce shareholder value creation. Since value creation depends on consistent cash flow generation in excess of the cost of capital, incentives chosen will tend to reward results from consistent cash-flow- based decision-making. Targets are set and measured with yardsticks as close as possible to cash. As we said earlier, this approach is directly applicable in the operational area, where the cause-and-effect relationship between incentives and results can be found in fairly basic targets, such as volume goals in sales or production, carefully calibrated against quality standards and relative contribution from products and services, or cost effectiveness standards that encourage enhanced performance within required service and quality levels. We're not talking merely about managing budgetary variances, but about setting specific sub-goals within a broader set of systematic expectations, accompanied by open communication about the fit of these sub-goals into the overall strategic context. The process in effect focuses on identifiable and measurable value drivers, which we mentioned earlier.

In the strategic area, long-term incentives should primarily be based on the cash flow expectations from specific plans, whether for a product or service sector in the business, or for the company as a whole. In essence, incentives are founded on the ability to bring about the cash flow streams committed to in strategic plans, and rewards fluctuate in response to such performance. The value creating

company structures true incentives, that is, underperformance means a tangible penalty, while excellence is well rewarded. In addition, there is great emphasis on long-term performance to avoid the temptation to make decisions that enhance short-term results to the detriment of shareholder value creation.

## Total Systems Management

As we've mentioned before, and as we'll illustrate in much more detail, the most important attribute of a successful, value creating company is its deliberate emphasis on managing the company and its parts as a total system. In simple terms, this means that there is coherence and positive, economic reinforcement reach- ing across all operational, investment and financing activities. The pattern of strategies and policies chosen is well-matched with the purpose and core capabilities of the company and its stakeholders. Senior management constantly monitors and reinforces this systems view through its feedback and actions, and stands ready to remedy any conflicting actions that could detract from the aim to optimize the overall system. Every major decision, whether affecting operational execution, investments, acquisitions or disinvestments, or financing choices and funding sources, is made within the systems context to ensure that all implications and linkages are considered and the appropriate trade-offs established. Decision rules and practices for day-to-day decisions are calibrated to reflect the systems view as well.

To achieve such integration of corporate purpose, strategies, policies, activities and decision-making is not an easy task. Only a few companies experience it fully and consistently, but it is here where the attributes of the economic manager we discussed can be applied most effectively. It requires constant vigilance and communication, as well as very consistent management behavior with responses that match this image. The rewards to shareholders, managers and other stake- holders are obvious, when value creation at the levels of, say, General Electric is considered. Every management team must ask itself from time to time whether it is managing the system entrusted to it by the shareholders in a coherent systems manner, and financial/economic analysis as we'll discuss it in this book is a critical component supporting this integrated approach.

# A SYSTEMS CONTEXT FOR FINANCIAL MANAGEMENT

Any business, large or small, is a system of financial relationships and cash flows, which are activated by management decisions—a key principle we established. This concept gained importance in the 1990s, when creation of shareholder value emerged as a critical performance challenge and became one of the primary goals of modern management. Creating shareholder value depends on bringing about a positive pattern of cash flows in excess of investor expectations. A business that is successfully managed in all parts as an integrated system will generate such cash flows over time and well into the future—thus becoming a value creating company.

Given that the basic purpose and value of business activity depend on long- term cash flow generation, it's necessary for us to understand more specifically how the dynamics of the integrated business system work. Moreover, we must directly relate the various analytical concepts and tools we'll discuss in this book to the business system. As we observed, they should assist decision makers at all lev- els in specific ways to support cash flow generation and shareholder value creation. Finally, we must provide an appropriate context for the use of commonly available financial information with which such analytical activity is supported.

In this chapter we'll expand the picture we've developed in the previous chapter, by presenting three conceptual overviews for the context and meaning of financial/economic analysis and the key economic trade-offs it supports. The purpose is to provide the reader with a realistic structure that goes beyond mere coverage of technical tools and methods:

- A graphic representation of the generalized, integrated business system, showing the relationships and dynamics of the three basic management decision areas which are common to all organizations which have an economic purpose:

① Investment decisions
② Operating decisions.
③ Financing decisions.

- Abroad perspective of the nature, meaning, and limits of the major published financial statements, which are the primary source of financial data, and their relationship to the business system:

① Balance sheets.
② Income (operating) statements.
③ Cash flow statements.
④ Statements of changes in shareholders' (owners') equity.

- A generalized overview of the key analytical processes used in interpreting the performance and value of the business system, grouped by three major viewpoints:

① Financial accounting.

② Investor analysis.

③ Managerial economics.

In our discussions we'll continue to differentiate between purely financial analysis on one hand, and economic analysis and trade-offs on the other. As we mentioned, the first is largely based on financial statements and accounting data, while the second focuses on cash flows. We make this important distinction be- cause the tasks of analyzing, judging, and guiding a firm's activities are far broader and more complex than the mere manipulation of reported financial data. Ultimately, the performance and value of any business must be judged in economic terms; that is, expressed in cash flows achieved and future cash flows expected.

Yet, we must remind ourselves that much of the available data and many of the analytical techniques generally used are based on financial accounting and its special conventions, which by their nature don't necessarily reflect current and future economic performance and value. Therefore, the manager or analyst must at all times carefully interpret and even translate the available data to properly match the context and purpose of the analysis. It's the both the manager's and the analyst's duty to make sure that the process selected and the results obtained in any analysis clearly fit the desired objectives, whether they express a financial viewpoint or an economic insight when judging performance, expectations, or valuation.

## A Dynamic Perspective of Business

### Decision Context

As we've established, successful operation, performance, and long-term viability of any business, depend on a continuous sequence of sound decisions made individually or collectively by the management team. Every one of these decisions ultimately causes, for better or worse, an economic impact on the business. In essence, the process of managing any enterprise requires ongoing economic choices; each time trading off costs and benefits. These choices in turn activate specific, identifiable shifts in the physical and financial resources supporting the business. Ultimately these shifts cause movements of cash, which is the final economic result.

***For Example***

Hiring an employee means incurring a future series of salary or wage payments in exchange for useful services. Selling merchandise on credit releases goods from inventory to the customer and creates a documented obligation by the customer to remit payment within 30 or 60 days. Investing in a new physical facility causes, among other effects, a potentially complex set of future financial obligations to be fulfilled. Developing a new software application involves a significant period of cash commitments for salaries, technical support, and testing before marketing efforts result in a revenue stream. Successful negotiation with a lender for a line of credit brings an inflow of cash into the business, to be repaid in future periods.

Some decisions are major, such as investing in a new manufacturing plant, raising large amounts of debt, or adding a new line of products or services. Most other decisions are part of the day-to-day processes through which every functional area of a business is managed. We earlier established the common theme that all decisions are economic trade-offs; that is, before a decision is made the decision maker must weigh the cash benefits expected against the cash costs incurred.

In normal day-to-day decisions, these underlying trade-offs can be quite apparent and identifiable. In complex situations, however, managers must carefully evaluate whether the net pattern of resources committed directly or indirectly by the decision is likely to be profitably recovered over time through the changes in revenues and expenses caused by this commitment. Managers also must identify the relevant information needed to support this analysis. The collective effect of the series of trade-off analyses and decisions ultimately impacts both the performance and value of the business. Results are then judged periodically, either by means of financial statements or with the help of special economic analyses.

Fundamentally, managers make decisions on behalf of the owners of the business, while addressing the interests of the various stakeholders involved, that is employees, suppliers, creditors and the community. In this process, managers are responsible for effectively deploying available internal and external resources in ways that create an economic gain for the owners—a gain reflected over time in the combination of dividends and share price appreciation received by the owner/shareholders. This concept, called *total shareholder return (TSR),* is one of the key criteria for measuring the success of the company relative to its peers and the market as a whole.

Despite the great variety of issues faced every day by managers of different businesses, and within the hierarchy of business activities we discussed in the first chapter, management tasks are so similar in principle that we can effectively group all business decisions into three basic areas:

- The investment of resources.
- The operation of the business using these resources.

- The proper mix of financing that funds these resources.

Figure 2–1 reflects the continuous interrelationship of these three areas.

Today's business world has infinite variety. Enterprises of all sizes engage in activities such as trade, manufacturing, finance, and myriad services, using a variety of business models, and legal and organizational structures. They frequently involve international operations, far-flung investments and internet sup- port. Common to all businesses, however, is the following definition of the basic economic purpose of sound management:

> *Strategic deployment of selected resources in order to create, over time, economic value sufficient to recover all of the resources employed while earning an acceptable economic return on these resources under conditions that match the owners' expectations of risk.*

Over time, therefore, successful resource deployments should result in a net improvement in the economic position of the owners of the business. Only when such an improvement is achieved has additional shareholder value been created, as we'll discuss later. The primary effect of value creation normally will be a higher valuation of the business. If the company's stock is traded publicly, its value is judged by the securities markets. If the company is privately held, its value will be reflected in the price offered by potential buyers of the business. If no value increment is achieved over time, or if there is a declining trend, the firm's economic viability might be in question.

FIGURE 2–1

The Three Basic Business Decisions

Therefore, creating shareholder value ultimately depends on properly managing the three basic decision areas common to all organizations

- Selecting, implementing, and monitoring all *investments* based on sound, sustainable strategies, economic analysis and effective management.
- Guiding the *operations* of the business profitably through proper trade- off decisions and cost-effective use of all resources employed.
- Prudently *financing* the business by consciously trading off the rewards expected against the risks encountered in balancing internal and external financing in the capital structure.

Making successful economic trade-offs in all of these decisions is fundamental to driving the value creation process. These trade-offs must also be explicitly chosen and managed in a consistent way to achieve long-run success, instead of focusing on occasional short-term improvements that cannot be sustained or might detract from longer-term results. Figure 2–2 depicts the definition and purpose of the three interrelated decision areas.

As we observed earlier, the basic task—and the fundamental challenge—of financial/ economic analysis lies in constructing and sharing a reasonably consistent and meaningful set of data and relationships that will support the decision- making process for the purpose of value creation. If this is done well, the chosen frameworks and tools should enable the analyst and the manager to judge the economic trade-offs involved in investment choices, financing options, and operational effectiveness, and help define and judge the company's economic performance, future expectations, and value.

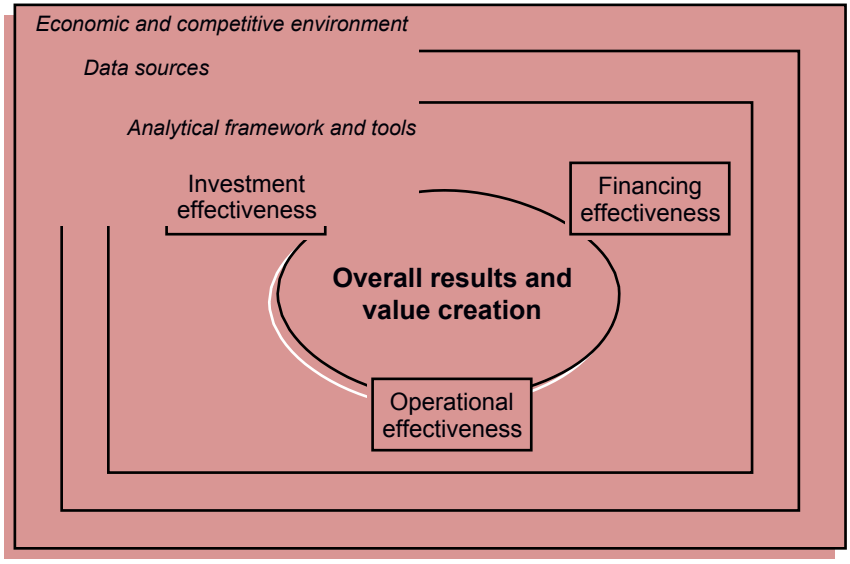
Figure 2–3 illustrates, in the form of background layers, the analytical framework and tools, data sources, and the general backdrop of competitive and economic conditions to the three decision areas. This picture presents an integrated set of concepts for the ideal interplay of management decisions and the interpretation of results.

FIGURE 2–2

The Process of Value Creation


FIGURE 2–3

The Broad Context of Financial/Economic Analysis




## The Business System

As we know, there's a dynamic interrelationship among decisions made by man agers. Decisions cause resource movements in various forms that ultimately change the cash flow pattern of the business as a whole. The process migh involve some intermediate steps before cash movements occur, as we'll discuss in Chapter 3, but increases or decreases in cash will invariably follow any decision made. We observed that in a successful business, the balancing of cash uses and sources over time generates positive cash flow patterns that lead to the desired buildup of economic value and long-term viability. In fact, creation of shareholde value and cash flow patterns—achieved and expected—are inseparable concepts. As we take up the analytical concepts and tools in the book, we'll relate them, as

appropriate, to the simple principle that "cash in" versus "cash out" is the key to any economic analysis.

Let's now develop a practical, simplified view of how a typical business operates. With the help of an intuitive systems diagram we'll demonstrate the basic cash flow patterns, the key relationships, and the key decisions involved in an integrated fashion. Then we'll show how the major financial/economic analysis measures and key business strategies relate to this business system. Every one of the measures and concepts will, of course, be discussed in greater depth in the appropriate chapters of this book, but this overview provides a structure for keeping the individual elements in proper perspective.

Figure 2–4 presents the basic flow chart of the business system, which contains all major elements necessary to understand the broad cash flow patterns of any business. The arrangement of boxes, lines, and arrows is designed to show that we're dealing with a system in which all parts are interrelated to each other– and which therefore has to be managed as a whole. The solid lines with arrows represent cash flows, while the dashed lines symbolize trade-off relationships. The system is organized into three segments that match the three major decision areas we've defined: investment, operations, and financing.

- The top segment represents the three components of business investment: the *investment base* already in place, the addition of *new investments,* and any *disinvestment* (divestment) of resources no longer deemed effective or strategically necessary. In addition, it shows the *depreciation effect* caused by accounting write-offs of portions of depreciable assets against the investment base and against profits. This box, which effectively enhances the funding potential shown in the bottom segment, represents available cash that was masked when the accounting-based operating profit after taxes was calculated.
- The center segment represents the operational interplay of three basic elements: *price, volume,* and *costs* of products and/or services. It also recognizes that usually costs are partly fixed and partly variable relative to volume changes. The ultimate result of the complex set of continuously made trade-offs in the operations area is the periodic operating profit or loss, after applicable income taxes. Operating profit is shown as part of the bottom segment in the diagram, because profit represents one of the key elements of financing the business.
- The bottom segment represents, in two parts, the basic financing choices open to a business:
    1. The normal disposition of the *operating profit after taxes* (or loss after taxes) that has been achieved for a period:

       This is a three-way split among *dividends* paid to owners, *interest* paid to lenders (adjusted for taxes because of its tax deductibility), and *earnings* retained for reinvestment in the business. As the arrows indicate, the cash used for paying dividends and interest leaves the system.

2. The available choices for using long-term capital sources:

   This reflects *shareholders' equity* (ownership), augmented by retained earnings, and *long-term debt* held by outsiders. Trade-offs and decisions that affect the levels of shareholders' equity, retained profits, or long-term capital sources impact the company's *funding potential,* which, as the arrow moving from the left to the top indicates, affects the amount of new investment that can be added to the investment base. As was already mentioned, the depreciation effect shown in the top segment enhances the funding potential, because it reflects cash that was masked in the accounting profit calculation. Alternatively, of course, some of the enhanced funding potential can be used to reduce long-term debt, or to repurchase outstanding ownership shares in the market. These actions will, of course, change the capital structure proportions and cause cash to leave the system.

Now we'll examine each part of the business system in further detail to highlight the three types of decisions and the various interrelationships among them.

## Investment Decisions

Investment is the basic driving force of any business activity. It's the source of growth, supports management's explicit competitive strategies, and it is normally based on careful plans (capital budgets) for committing existing or new funds to three main areas:

① Working capital (cash balances, receivables due from customers, and inventories, less trade credit from suppliers and other normal current obligations).

② Physical assets (land, buildings, machinery and equipment, office furnishings, computer systems, laboratory equipment, etc.).

③ Major spending programs (research and development, product or service development, promotional programs, etc.) and acquisitions.

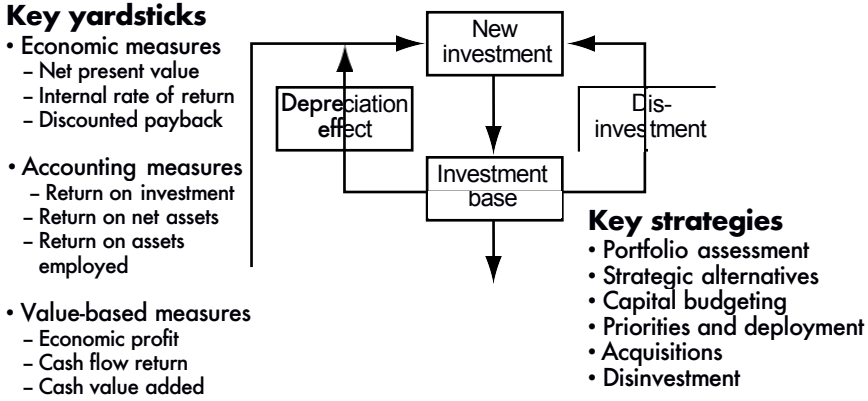
Note that investment is broadly defined here in terms of resource commitments to be recovered over time, not by the more narrow accounting classification which would, for example, categorize most spending programs as ongoing expenses, despite their longer-range impact. Figure 2–5 shows the investment portion of the systems diagram, accompanied by major yardsticks and key strategies that can be identified in this area.

During the periodic planning process, when capital budgets are formulated, management normally chooses from a variety of options those new investments that are expected to exceed or at least meet targeted economic returns. The level of these returns generally is

related to shareholder expectations via the cost of capital calculation, as described below. Making sound investment choices and implementing them successfully—so that the actual results in fact exceed the cost of capital standard—is a key management responsibility that leads to value creation. New investment is the key driver of growth strategies that cause enhanced shareholder value, but only if carefully established investment standards are met or exceeded.

FIGURE 2–5

The Business System: Investment Segment




At the same time, successful companies periodically make critical assessments of how their existing investment base (portfolio) is deployed, to see if the actual performance and outlook for the individual products, services, and business segments warrant continued commitment within the context of the company's strategic posture. If careful analysis demonstrates below-standard economic results and expectations about a particular market or activity, then the opposite of investment, *disinvestment,* becomes a compelling option. As we'll see, such poor per- forming activities destroy shareholder value. Disposing of the assets involved or selling the operating unit as a going concern will allow the funds received to be re- deployed more advantageously elsewhere. Also, the sale of any equipment being replaced by newer facilities will provide funds for other purposes. Shareholder value creation thus depends on a combination of ongoing successful performance of existing investments, and the addition of successful new investments—a continued reassessment of the company's total portfolio of activities.

The yardsticks helpful in selecting *new investments* and *disinvestments* are generally economic criteria. They are based on cash flows, measuring the trade- off between investment funds committed now and the expected stream of future operational cash flow benefits, and residual values. The cash flow tools listed here, net present value, internal rate of return, and discounted payback, are discussed in detail below . In contrast, common yardsticks that measure the effectiveness of

the existing investment base generally are based on accounting data and relationships. These measures—return on investment, return on assets, and return on assets employed—relate balance sheet and income statement data as basic ratios. We'll show that there's a real disconnect between the economic measures commonly used for new investments, and the accounting- based measures for existing investments. This gap in comparability must be bridged in order to achieve a consistent approach to shareholder value creation. In fact, this bridging process has been underway since the '90s with the significant shift of corporate America toward *value-based management*. Measures such as economic profit, cash flow return on investment, and cash value added have become widely used in judging the performance and value of existing operations, these measures are cash-flow oriented and thus are comparable to the economic yardsticks used for new investment.

## Operating Decisions

Here key strategies and decisions should focus on effective utilization of the funds invested to ensure that their implementation and continued operation meet the criteria and expectations on which the commitment was originally based. The basic set of trade-offs in operations, as was already mentioned, lies in the price, volume, and cost relationship, but surrounding this simple concept is an extensive array of complex choices and decisions.

To begin with, the company must develop its product and service offerings to achieve excellence relative to market expectations. This must be accompanied by positioning its operations competitively to make use of its core competencies and to differentiate itself from its competitors. Here we're talking not only about a strategic concept, but about a very practical operational application of such ad- vantages as cost-effective facilities, superior skills and systems in delivery and customer service, highly effective information systems linked with customer net- works, and unique technology or research capabilities. Deploying its resources in carefully selected target markets, the company must use appropriate pricing and service policies that are competitive in filling customers' needs. Management must anticipate and deal with the impact of changing prices and competitors' actions on sales volume and on the profitability of individual products or services. At the same time, all operations of the business, whether carried on inside the company or outsourced with others must not only be made cost effective, but maintained as such to achieve competitive success. Figure 2–6 highlights key elements of the operations segment of the financial system.

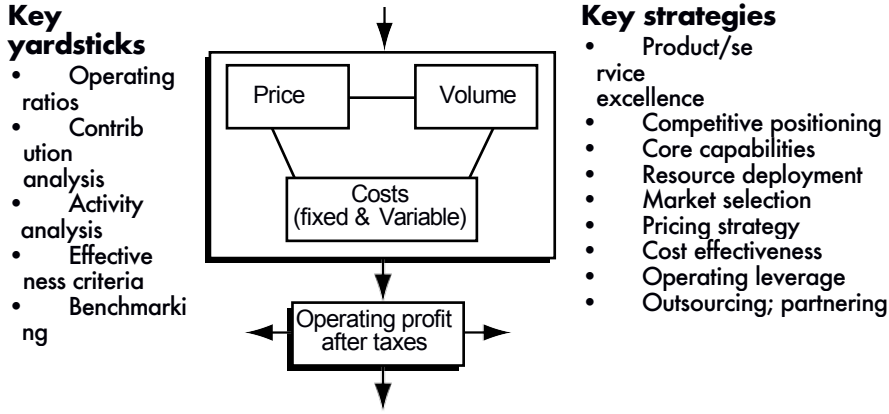
Successful operating results also depend on a realistic understanding of the business processes employed, the economic costs and benefits of each part of the organization, and the relative contribution of products and services

to overall results. This requires the use of appropriate information systems, data collection, and reporting. Part of the insight is the effect on the company's profitability of the level and proportion of fixed (period) costs committed to the operations, versus the amount and nature of variable (direct) costs incurred in manufacturing, service, or trading operations.

Sound operational planning is an essential support process. Goals and incentives are established to reinforce the need for making economic decisions. Budget- ing and analysis processes are designed to give relevant feedback, and provide

FIGURE 2–6

The Business System: Operations Segment




action signals for corrective measures should targets not be met. Enterprise model- ing and activity-based accounting represent modern information structures made possible by ever more powerful computer systems and networks.

The key yardsticks in the operations segment include a variety of operating ratios that measure the effectiveness with which revenues and costs are managed. Among these are financial expressions such as operating profit percentages and various ratios of cost elements to sales revenue. There are overall expressions such as sales and assets per employee, and a host of operating statistics such as output per hour, yield percentages in production, or indicators of customer satis- faction with services rendered. Operating ratios vary greatly by type of business, as they have to be tailored to the specific variables that drive performance. In fact, operating ratios are ideally derived from those variables that represent key drivers for the business, whether they be

physical conditions, human skills and attitudes, resource utilization, or technology application. From an economic standpoint, the relative profit and cash flow contribution margins of different products and services are important measures, not only for tracking current performance but as an input to strategic decisions about the portfolio of products and services.

The distinction between accounting ratios and economic analysis is again important in the operations segment, because the answers provided by each can vary significantly. This problem has led to the wide use of a relatively recent methodology that directly addresses the need for economic answers, namely, *activity-based analysis*, which was mentioned earlier. This process is essentially a step-by-step identification of the physical activities involved in a specific function of the company, or the activities required to support a particular product line, followed by a careful economic analysis of the costs and benefits incurred in each step and in total. Because it amounts to an economic assessment, activity- based analysis has become an important technique for supporting the current emphasis on corporate reengineering and value-based management. In addition, benchmarking activities against best practices in the specific industry or in general business usage represents yet another popular way of refining the measures and standards to be applied.

## Financing Decisions

Here we must deal with the various choices available to management for funding the investments and operations of the business over the long term. Note that the financing section begins with profit after taxes, which normally is a major source of funding for a company. Two key areas of strategy and trade-off decisions are identified:

- The disposition of profits.
- Shaping the company's capital structure.

Normally this set of trade-offs and decisions is made at the highest levels of management and endorsed by the board of directors of a corporation because the choices are crucial to the firm's long-term viability. Figure 2–7 displays the relationships, yardsticks, and strategies in the financing segment. The first area, the disposition of profits, amounts to a basic three-way split of after-tax profit among:

- Owners.
- Lenders.
- Reinvestment in the business.

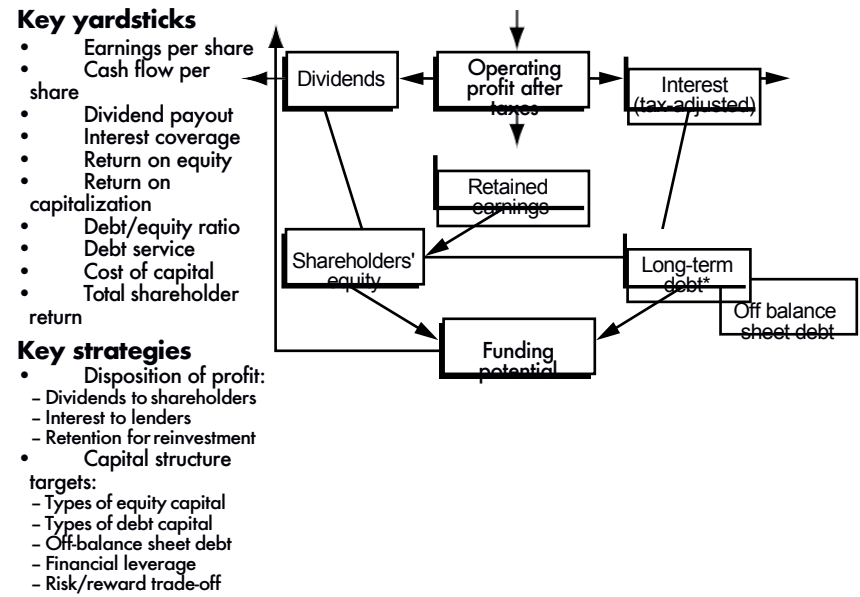
Every one of these choices is affected by current or past

management policies, trade-offs, and decisions. For example, payment of dividends to owners is made at the discretion of the board of directors. Here, the critical trade-off choice is the relative amount of dividends to be paid out to shareholders as part of their overall return versus the alternative of retaining these funds to invest in the company's growth, with the goal of creating additional value which will be reflected in greater share price appreciation for the shareholders.

Payment of interest to lenders is a matter of contractual obligation. The level of tax-adjusted interest payments incurred (the cost to the company is the net amount after applying the corporate tax rate) relative to operating profit, however, is a direct function of management policies and actions regarding the use of debt, symbolized by the dashed line. The higher the proportion of debt in the capital structure, the greater the demand will be for profit dollars to be used as interest ex- pense, and the greater the firm's risk exposure will be; that is, its potential inabil- ity to meet interest obligations and/or repayment during a business downturn.

FIGURE 2–7

The Business System: Financing Segment




*Assumes a continuous rollover of debt (refinancing), that is, there is no reduction in existing debt levels from repayments, as new funds are raised to cover these, unless a policy change in debt proportions is specified. No specific provision is made here for use of off-balance sheet debt, such as operating leases.

Retained earnings represent the residual profit after taxes for the period, a net amount which remains in the company after payment of interest and dividends. This normally forms a significant part of the funding potential for additional investment and growth as shown on the bottom of the chart. We recall that the depreciation effect was added to this funding potential and reflected in the in- vestment section, to correct for the amount of cash masked by the depreciation deduction made in arriving at operating profit after taxes, as will be discussed in Chapter 3. Additional funding potential can be found in new funds provided by lenders and investors, depending on the company's policies governing the use of such long-term sources.

Key measures in the area of earnings disposition are earnings and cash flow (after-tax profit plus the depreciation effect), calculated on a per-share basis, which are viewed as broad indicators of the company's ability to compensate both lenders and owners. In addition, specific ratios are used that measure the proportion of dividends paid out, the degree to which earnings cover the current interest on debt, and how well total debt service requirements are covered.

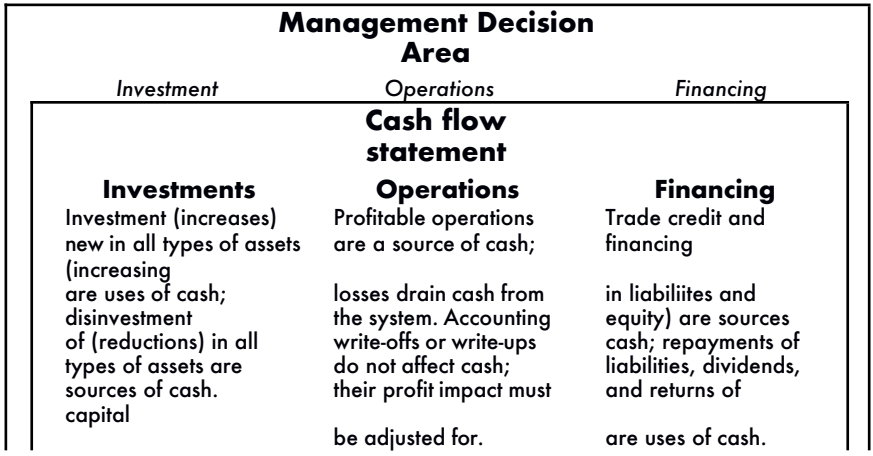
The second area, the planning of capital structure targets, involves selecting and balancing the relative proportions of funding obtained over time from owner- ship sources and long-term debt obligations. The chosen combination, after taking into account business risk and debt service requirements, is intended to support an acceptable level of overall profitability while matching the degree of risk expo- sure deemed appropriate by management and the board of directors. A key consideration in choosing funding methods is the impact of financial leverage. It can be defined as the prudent use of funds obtained from fixed-cost debt obligations for financing opportunities that promise potential earnings higher than the interest cost on the borrowed funds—the difference benefiting the owners of the company.

Again, this process requires a series of economic trade-offs, which include weighing the rewards obtained versus the risks involved in the different alternatives open to management, numerous types of equity, ranging from straight common equity to convertible shares and preferred stocks, can be used for new ownership funding. On the other hand, existing ownership funds also can be returned through repurchase of the company's shares in the open market, using some of the current funding potential. The latter choice has become an important aspect of capital structure management, because repurchasing stock with corporate cash flow reduces the number of shares outstanding, making each remaining share proportionately more valuable. At the same time, no dividends need be paid on the purchased shares, which can be used at a later time for purposes such as acquisitions. The trade-off is between adding value through new investment and adding share value through a reduced number of shares.

The footnote to Figure 2–7 refers to an assumption about continuous rollover of debt. This is necessary because the business system as described here is a simple growth model with stable capital structure policies, also called target proportions. Normally, as the amount of shareholders' equity grows with incremental retained earnings, management will likely wish to match this increase, in the proper proportion, with an incremental amount of new debt–unless management decides that a change in debt policy is appropriate for a variety of reasons. In that case, specific assumptions will have to be made about the pattern of re- payments planned, which, of course, will change the relative proportions of debt and equity outstanding, and also change the cash flow patterns in the model.

FIGURE 2–12

Cash Flow Statement in Decisional Context




However, because it focuses on the *changes* incurred during the period, the limitations due to historical valuation are usually not significant. However, we must remember that by displaying the net change from the beginning to the end of the chosen period in each asset, liability, and owner- ship account reported, the statement might "bury" major individual transactions that occurred during the period and perhaps offset each other. Normally, however, material transactions of this kind (such as major investments, acquisitions, or divestitures) are noted specifically in the company's cash flow statement. The statement therefore affords the user the most detailed picture of the impact of major events of the period.

## The Context of Financial Analysis

Now that we've explored the broad background of business system dynamics and the nature of commonly available financial statements that describe performance and values from a specific, limited viewpoint, it's useful to provide one more con- text that allows us to put the materials of the book into proper perspective. It will reinforce a number of the references we have made earlier to the judgmental as- pects involved in financial analysis, and to the distinction between financial and economic analysis.

FIGURE 2–17

The Different Objectives of Financial/Economic Analysis Processes

| *Financial Accounting* | *Investor Analysis* | *Managerial Economics* |
|---|---|---|
| **Profit Determination** | **Financial Information** | **Activity Economics** |
| • Revenue recognition | • Adjustment process | • Task analysis |
| • Expense recognition | • Trend analysis | • Economic allocation |
| • Cost allocation | • Profit projection | • Contribution analysis |
| • Profit definition | • Cash flow projection | • Trade-off determination |
| **Value Determination** | **Comparative Data Effectiveness** | **Resource** |
| • Historical costs | • Industry analysis | • Investment base |
| • Conservatism | • Competitor analysis | • Capital investments |
| • Equity as residual value | • Economic conditions | • Capital divestments |
| • Contingency recognition | • Adjustment areas | • Human resources |
| **r Tax Determination Creation** | **Market Analysis** | **Shareholde Value** |
| • Legal data requirements | • Share price patterns | • Cash flow patterns |
| • Income/expense timing | • Market trends | • Cost of capital |
| • Tax management issues | • Value drivers | • Investor expectations |
| • Statement adjustments | • Market models | • Ongoing business value |

Managers or analysts performing various kinds of financial/economic analysis normally do so with a specific purpose in

mind. During the process of analysis, financial statements, special analyses, databases, and other information sources are used to derive reasonable judgments about past, current, and prospective conditions of a business and the effectiveness of its management.

We must recognize that not only does the person performing the analysis and interpretation have a purpose and viewpoint, but so do the preparers and providers of the various types of data and information on which the analysis is based. For example, during our discussion of financial statements, we referred to the accounting rules and principles governing the compilation of these documents, and to the need to allow for the specific biases introduced by them. This isn't to say that financial statements are right or wrong in an absolute sense, but rather that the information might have to be adjusted in some cases, or discarded in others, in order to suit the purpose of the analysis.

Figure 2–17's descriptive overview presents the key objectives of three major financial/economic processes as a context for understanding the differences in data generation and analytical orientation involved in each:

- Financial accounting.
- Investor analysis.
- Managerial economics.

The table identifies these three as processes whose objectives differ, al- though they frequently have to draw on each other for information and data. We must consider the orientation and focus of these processes when information is shared between them, or exchanged for use by any one of them. Our ultimate aim is to analyze and judge business problems, company performance, and share-holder value in *economic* terms, which requires careful adjustment of data and analyses that often were prepared with different objectives in mind.

When we speak of basic financial analysis in this book, we put more emphasis on the objectives of the left column (financial accounting) and to some extent on the middle column (investor analysis). When we refer to economic analysis, however, the focus is on the right column (managerial economics) and also on a number of the areas in the center column. Despite the obvious differences among the three areas, the majority of the available data are originated on the left, by financial accounting, while some are obtained from the right, from analytical efforts or internal databases on which managerial economics depends. In addition, databases covering the stock market and economic activity come into play in the center column.

**Financial accounting** has three major objectives as governed by professional standards and SEC regulations:

- Profit determination.
- Value determination.
- Tax determination.

*Profit determination* focuses on recognizing when revenue is earned during a period, and how to determine the matching costs and expenses. A clear distinction must be drawn between the recording of a revenue or expense transaction, and the actual receipt or disbursement of cash, which might lag by days or months. Similarly, costs incurred in the past are allocated to current or future periods with the objective of determining a profit figure that matches only "recognized" revenue and expense elements. A similar allocation process might apply to anticipated future costs that are apportioned to current periods. These allocations have significant implications for cash flow analysis.

*Value determination* rests firmly on the principle of historical costs, a conservative concept that uses only actual transaction evidence as the value criterion. When economic values of assets acquired in the past change, adjustments to values generally are made only if they decline. This is commonly done for accounts receivable that have become uncollectible, or inventories where market value has declined below cost. Increases are recognized (realized) only when assets are sold, not while they're being held. The residual value of the business, that is, its recorded shareholders' equity (book value), therefore might over time bear only limited re- semblance to the equity's market value (economic value). In addition, the growing emphasis on recording contingencies of all kinds in the liability section of the balance sheet introduces a negative bias in value, because only potential liabilities are established, not potential gains. Examples are long-term pension and benefit obligations, and potential liabilities arising from all types of operational, legal, and contractual issues. Generally such contingent liabilities are set-asides of shareholders' equity, further diminishing the recorded book value of equity.

Meanwhile, appreciation of assets like land, buildings, natural resources, technologies, and patents is left unrecognized until they're disposed of. As the wave of corporate takeovers in the past fifteen years demonstrated, careful analysis of the target companies' balance sheets often uncovered massive amounts of unrecorded potential gains, which could be turned into cash from the eventual breakup of the acquired companies, and used in part to pay for the acquisition.

*Tax determination* is governed by the legal requirements of the current in- come tax code, which often requires modified principles of income and expense recognition, including disallowance of certain costs and expense—in effect amounting to a different set of books. Tax rules tend to speed up the timing of revenue recognition compared with

financial accounting rules, and at the same time, delay expense recognition. These rules are clearly designed to enhance current tax receipts for the government. Differences between financial account- ing for reporting purposes and for tax accounting give rise to tax management issues (legally minimizing taxes) in companies and industries where the amounts involved could be significant enough to affect actual decisions on investments, operations, and financing.

From the standpoint of financial analysis, the important question is what effect tax accounting has on the financial statements used for analysis. As we'll see, the amount of taxes actually paid versus the amount shown on the income statement can differ materially, and adjustments made on the balance sheet to compensate for this situation might involve significant funds movements. From an analytical standpoint, we'll show the importance of recognizing the tax implications of various types of decisions.

**Investor analysis** in this context has three objectives:

- Interpretation of financial information.
- Use of comparative data.
- Analysis of financial markets.

*Interpretation of financial information* essentially amounts to analyzing financial statements and other financial data about a company in order to assess and project its performance and value. The key judgments focus on the adjustment process through which reported accounting data are modified or converted into in- formation that permits economic and cash flow assessments to be made. Only rarely can financial data, as generally provided, be used in their exact form to de- rive analytical judgments. Applying the various ratios and relationships. for example, often leads to significant questions and actual adjustments during the analysis.

Trend analysis uses various series of adjusted past data to look for and analyze significant changes in magnitudes and ratio relationships over time, and it becomes one of the bases of profit projection. Finally, the ultimate adjustment leads to under- standing the pattern of net cash flows generated by the business, and the projection of these cash flows as an indicator of expected economic performance and value.

*Comparative data* are an essential part of financial analysis, as they help put judgments about a particular company or business in perspective. By implication, all judgments made about performance and value are relative to the standards and perceptions of the analyst; comparable data assist in confirming these judgments. Industry analysis involves the selection of relevant groupings of companies and compiling appropriate data and ratios (generally available in on-line

databases) against which to measure the attributes of the company being studied. The important issue here again is the need to interpret and adjust the financial data so that they match the data used for the original company.

Competitor analysis applies the same process to individual companies or divisions of those companies that compete directly with the business. Economic conditions and the competitive dynamics of the markets served are brought into the analysis as a backdrop for explaining past variations, and as a guide to projecting future performance and value.

*Market analysis* involves the study and projection of the pattern of share prices of the company and its competitors relative to trends in the stock market, in relation to general economic and political conditions, and with reference to industry and company-specific forces. It is here that financial analysis becomes a bridge between published financial statements and stock market trends that reflect the economic value of a company. The analyst focuses on the value drivers behind the market value of the shares, which are basic economic variables like cash flow generated and the relative cost effectiveness of the business, along with judgments about the expected impact of known strategies in the competitive setting. Market models range from simple relationships of key variables and share price to com- plex computer simulations, in an effort to determine the current and potential shareholder value created by the expected cash flows of the business.

**Managerial economics** encompasses three basic objectives:

- Determining activity economics.
- Determining resource effectiveness.
- Creating shareholder value.

All three areas deal with economic insights management can use to make decisions that will enhance shareholder value. In that sense, the orientation of managerial economics is closely allied to the basic purpose of economic analysis as we define it here. In fact, the third objective directly supports the ultimate question: Is the business creating value for its owners? In later chapters, we'll address the most important aspects of these areas.

*Activity economics* is a summary term for various types of processes and analyses that define and establish economically relevant data to describe and judge the relative attractiveness of any operational aspect of a business and its subdivisions. Among these, task analysis amounts to determining the true economic cost of a task, whether it be a functional area like purchasing, or legal services, or a line area like selling. This is done by identifying and measuring the series of steps required to provide a service, or the phases of a

manufacturing process, and to establish the resources used directly or indirectly in each case. This kind of analytical process, referred to previously as activity-based account- ing, goes far beyond cost accounting principles. These principles often fall short of a proper economic allocation of jointly used resources or often they can't recognize all aspects of a task or an activity.

Contribution analysis refers to measuring the difference between revenues created and the economic costs involved in a given line of business or a particular product or service. Such information on economic contribution helps management plan which combination of activities will create the most economic value over time. The choices always require economic trade-offs based on economic data, not accounting information. By using activity-based accounting information, management can make both operational and strategic choices in monitoring and adjusting its portfolio of products and services.

*Resource effectiveness* addresses the important question of how well, from an economic standpoint, the resources employed by a business are currently being utilized or will be utilized in the future. The process includes measuring the returns from the existing investment base, gauging the economic justification of new capital in- vestments or capital divestments, and measuring the returns from human resources.

*Shareholder value creation,* management's ultimate goal, is measured by means of a combination of past and projected cash flow patterns, the cost of capital of the particular company, and the overall return expectations of investors for this type of business. In essence, shareholder value creation becomes a tangible expression of the risk/reward trade-off the investor has to judge when invest- ing in the equity of a company. Management has to assess at all times whether cash flow expectations from the strategies, policies, and decisions employed are likely to serve the investors' interest by creating additional shareholder value.

# ANALYSIS OF INVESTMENT DECISIONS

The decision to invest resources is one of the key drivers of the business financial system, as we established above. Sound investments that implement well-founded strategies are essential to creating shareholder value, and they must be analyzed both in a proper context and with sound analytical methods. Whether the decision involves committing resources to new facilities, a research and development project, a marketing program, additional working capital, an acquisition, or investing in a financial instrument, an economic trade-off must be made between the resources expended now and the expectation of future cash benefits to be obtained. Analyzing this trade-off is essentially a valuation process that makes an economic assessment of a combination of positive and negative cash flow patterns. The task is difficult by nature because it deals with future conditions subject to uncertainties and risks—yet this basic valuation principle is com- mon to all investments, large and small.

In this chapter, we'll examine in some detail both the key conceptual and practical aspects of investment decisions, using the analytical techniques, we'll address the related issues of financing costs and the choice among financing alternatives, we'll expand on these concepts and demonstrate how the process applies to valuing a business and to the creation of shareholder value. From time to time, we'll introduce applicable portions of managerial economics and financial theory. In keeping with the scope of this book, however, we'll avoid the esoteric in favor of the practical and useful. At the end of each chapter, we'll summarize, as before, the key conceptual issues underlying the analytical approaches covered, both as a reminder and as a guide for the interested reader in exploring the references listed. The analysis of decisions about new investments (as well as the opposite, disinvestments) involves a particularly complex set of issues and choices that must be defined and resolved by management. We'll discuss these in several categories:

① Strategic perspective.
② Decisional framework.
③ Refinements of investment analysis.
④ Application of economic measures.

Because business investments, in contrast to operational spending, are normally long-term commitments of resources, they should always be made within the context of a company's explicit strategy. In fact, investment in the absence of a sound strategy is an invitation to economic ruin. An effective approach to value creation cannot be built

on retroactively trying to make sense out of sunk resource commitments. In addition, the financial analysis underlying the decisions and the trade-offs involved must be carried out within a consistent economic framework of accepted conceptual and practical guidelines.

Most business investment projects have several key components of analysis in common. These must be understood and made explicit, as well as comparable, in order to arrive at a proper choice among different investment alternatives, as we'll demonstrate on the basis of more complex examples. Finally, the economic nature of the process requires that the analytical methods supporting the decisions focus on the true cash flow impact of the in- vestment or disinvestment and be properly interpreted.

We'll take up each area in turn, emphasizing in greater detail the analytical components and methodologies. Once we've demonstrated the fundamental concepts, we'll introduce certain specialized aspects of the analytical process, such as sensitivity analysis, simulation, and the broader issues of dealing with risk. Some comments about related topics will follow, and we'll close with a checklist of key issues affecting investment analysis.

## Strategic Perspective

Investments in land, productive equipment, buildings, natural resources, research facilities, product development, employee development, marketing programs, working capital acquisitions, and other resource deployments made for future economic gain should represent physical expressions of a company's strategy– which management must carefully develop and periodically reevaluate. Invest- ment choices should always fit into the desired strategic direction the company wishes to take, with due consideration of:

- ✓ Expected economic conditions.
- ✓ Outlook for the company's specific industry or business segment.
- ✓ Competitive position of the company.
- ✓ Core competencies of the organization.

An almost infinite variety of business investments is available to most firms. It doesn't matter how the resource commitment is reflected on the company's books, whether in the form of an asset or as an expense for the period–the critical point is that the outlay is being made with an expectation of future returns. A company might invest in new facilities for expansion, expecting that incremental profits from additional volume will

make the investment economically desirable. Investments might also be made for upgrading worn or outmoded facilities to improve cost-effectiveness. Here, savings in operating costs are the justification.

Some strategies call for entering new markets, which could involve setting up entirely new facilities and associated working capital, or perhaps a major repositioning of existing facilities through rebuilding or through sale and reinvestment. In a service business, expansion strategies could involve significant employee training outlays and electronic infrastructure investments. Other strategic proposals might involve creating a new business model of Internet connectivity, or establishing a research program, justified on the basis of its potential for developing new products or processes. Business investment also could involve significant promotional outlays, targeted on raising the company's market share over the long term and, with it, the profit contribution from higher volumes of operation. At times, acquiring a company whose product or service lines fit into the company's strategy, or purchasing a supplier to integrate the technology base, might be appropriate. At other times, partnering or outsourcing part of the company's product or service offerings might create additional value.

These and other choices are conceived continuously by the organization. Typically, lists of proposals are examined during the company's strategic planning process within the context and constraints of corporate and divisional objectives and goals. Then the various alternatives are narrowed down to those options that should be given serious analysis, and periodic spending plans are prepared which contain those capital outlays that have been selected and approved.

The many steps involved in identifying, analyzing, and selecting capital in- vestment opportunities—as well as opportunities for divestiture—are collectively known as capital budgeting. This process includes everything from a broad scoping of ideas to very refined economic analyses. In the end, the company's capital budget normally contains an acceptable group of projects that individually and collectively are expected to provide economic returns meeting long-term management goals in support of shareholder value creation.

In essence, capital budgeting is like managing a personal investment port- folio. In both cases, the basic challenge is to select, within the constraint of avail- able funds, those investments that promise to yield the desired level of economic rewards in relation to the degree of acceptable risk. The process thus involves a series of conscious economic trade-offs between exposure to potential adverse conditions and the expected profitability of the investments. As a general rule, the higher the profitability, the higher the risk exposure. Moreover, the choice among alternatives in which to invest the usually limited funds available invariably involves opportunity costs, because committing to one investment can mean reject-ing others, thereby giving up the opportunity to earn perhaps higher but riskier returns.

In an investment portfolio, cash commitments are made in order to receive future inflows of cash in the form of dividends, interest, and eventual recovery of the principal through sale of the investment instrument–which over time might have appreciated or declined in market value. In capital budgeting, the commitment of company funds is made in exchange for future cash inflows from incremental after-tax profits and from the potential recovery of a portion of the capital invested, or from the value of a going business at the end of the planning horizon. However, the analogy carries only so far. In a typical company, managing business investments is complicated by the need not only to select a portfolio of sound projects, but also to implement them well and to operate the facilities, service functions, or other new resources deployed with quality and cost effective- ness. In addition, analyzing potential investments in a business context is far more complex than selecting among stocks and bonds because the outlays often involve multiple expenditures spread over a period of time and a wide variety of operational cash flows that are expected over the economic life. Examples are constructing and equipping a new factory, or the gradual building up of a service business and its infrastructure.

Determining the economic benefits to be derived from the outlay is even more complex. An individual investor generally receives specific contractual interest payments or regular dividend checks. In contrast, a business investment typically generates additional profit contributions from higher volume, new products and services, or cost reduction. The specific incremental cash flow from a business investment might be difficult to identify, because it's intermingled in the company's financial reports with other accounting information. As we'll see, the analysis of potential capital investments involves a fair degree of economic reasoning and projection of future conditions that goes beyond merely using normal financial statements.

If we follow the analogy between a capital budget and an investment port- folio to its logical conclusion, capital budgeting would ideally amount to arraying all business investment opportunities in the order of their expected economic re- turns, and choosing a combination that would meet the desired portfolio return within the constraints of risk and available funding. The theoretical concepts that have evolved around these issues rely heavily on portfolio theory, both in terms of risk evaluation and in the comparison between investment returns and the cost of capital incurred in funding the investments.

These concepts are highly structured and depend on a series of important underlying assumptions. Not easy to apply in practice, they continue to be the subject of much learned argument. In simple terms, the theory argues that business investments–arrayed in declining order of attractiveness–should be accepted up to the point at which incremental benefits equal incremental cost, given appropriate risk levels.

The economic attractiveness is most frequently expressed via the amount of net present value created.

This theory encounters several problems when applied in a practical setting. First, at the time the capital budget is prepared, it's simply not possible to foresee all investment opportunities, because management faces a continuously revolving planning horizon over which new opportunities keep appearing, while known opportunities might fade as conditions change even more rapidly. In recent times the speed of change in the business environment has increased dramatically.

Second, capital budgets are generally prepared only once a year in most companies. As various timing lags are encountered, actual implementation can be delayed or even canceled, because circumstances often change.

Third, economic criteria, such as the cost of capital and return standards based thereon, are merely approximations. Moreover, they are not the sole basis for the investment decision. Instead, the broader context of strategy and its attendant risks, the competitive environment, the ability of management to implement the investment, organizational considerations, and other factors come into play as management weighs the risk of an investment against the potential economic gain. Thus, there is nothing automatic or simple in arriving at decisions about the stream of potential investments that are continuously surfaced within a business organization.

In this chapter, we'll explore the decisional framework and apply the analytical techniques to the decision process for analyzing and choosing business investments. We won't delve into the broader conceptual issues of capital budgeting and portfolio theory, except to point out some of the key is- sues. Readers wanting more information on these topics should check the references at the end of the chapter. The important question of the cost of capital as related to capital budgeting will be taken up in the next chapter. Then, Chapter 10 will cover analytical reasoning behind the choice among types of potential fund- ing sources for capital investments.

## Decisional Framework

Effective analysis of business investments requires that both the analyst and the decision maker be very conscious of and specific about the many dimensions involved. We need to set a series of ground rules to ensure that our results are thorough, consistent, and meaningful. These ground rules cover:

① Problem definition.
② Nature of the investment.
③ Estimates of future costs and benefits.
④ Incremental cash flows.

⑤ Relevant accounting data.

⑥ Sunk costs.

A good rule of thumb to keep in mind is that of the total time and effort required to analyze a business investment, at least 85 percent should be spent on meeting the important requirements of framing and refining these elements of the decision, and only 15 percent on various forms of "running the numbers." Be- cause of the ease with which our spreadsheets can calculate data, however, there is the strong temptation to develop numerical approaches before proper framing has been done. Thus, unfortunately, the proportions of effort are often reversed in practice, resulting in potentially costly omissions of insight and clarification.

## Problem Definition

We should begin any evaluation by stating explicitly what the investment is supposed to accomplish. Carefully defining the problem to be solved (or the opportunity presented) by the investment and identifying any potential alternatives to the proposed action are critically important to proper analysis. This elementary point is often overlooked, at times deliberately, when the desire to proceed with a favorite investment project overrides sound judgment.

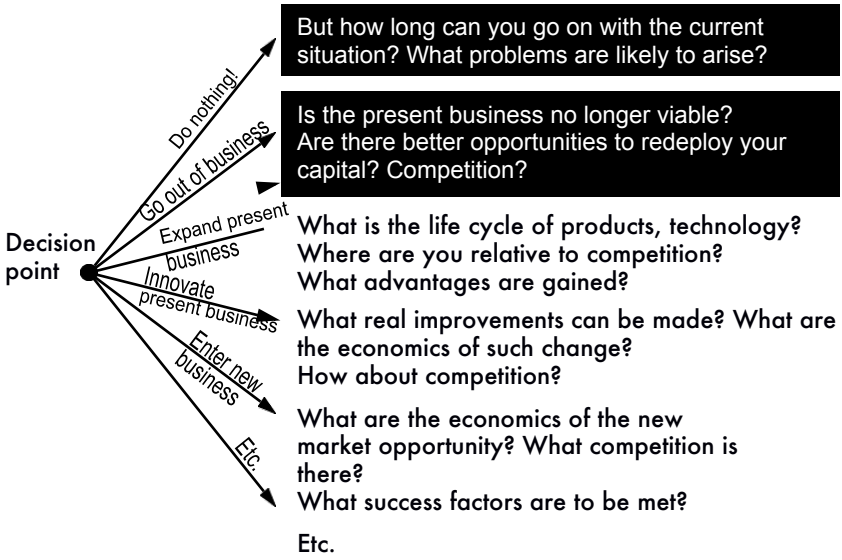
In most cases, at least two or three alternatives are available for achieving the purpose of an investment, and careful examination of the specific circumstances might reveal an even greater number. The simple diagram in Figure 8–1 can help us to visualize the key options for deciding on which alternatives to pursue in an investment proposal.

For example, the decision of whether to replace a machine nearing the end of its useful life at first appears to be a relatively straightforward "either/or" problem. The most obvious alternative, as in any case, is to do nothing, that is, to continue patching up the machine until it falls apart.

The ongoing, rising costs likely to be incurred with that option are compared with the expected cost pattern of a

FIGURE 8–1

Alternatives for a Business Investment Decision



new machine when we decide whether or not to replace it. But the alternative of doing nothing always exists for any investment project, and sound analysis re- quires that its implications be tested before proceeding.

But there are some not-so-obvious alternatives. Perhaps the company should stop making the product or providing the service altogether! This "go out of business" option should at least be considered—painful as it might be to think about—before new resources are committed.

The reasoning behind this seemingly radical notion is quite straightforward. While the improved efficiency of a new machine or a whole new service infra- structure might raise this particular operation's economic performance from poor to average, there might indeed be alternatives elsewhere in the company that would yield greater returns from the overall funds committed. By going ahead with the investment, an opportunity cost from losing a higher return option might be incurred. In the interest of shareholder value creation, it might indeed be better to redeploy all existing resources now devoted to the product or service instead of prolonging its substandard performance through an incremental investment that viewed by itself might be quite acceptable.

Moreover, even if the decision to continue making a product is economically sound under prevailing conditions, there still are several additional alternatives open to management. Among these, for example, are replacement with the same machine, or with a larger, more automated model, or with equipment using an altogether different technology and manufacturing process—or outsourcing the manufacture and thereby avoiding the investment.

It's crucial to select the appropriate alternatives for analysis and to structure the problem in such a way that the analytical tools are applied to the real issue to be decided. For decisions of major strategic importance, formal processes are available which use the disciplines of decision theory to aid in structuring the problem and in establishing an array of creative alternatives (see end-of-chapter references). As a general rule, however, no investment should be undertaken un- less the best analytical judgment allows it to clear the basic hurdles implied in the first two branches of the decision tree in Figure 8–1.

## Nature of the Investment

Most business investments tend to be independent of each other, that is, the choice of any one of them doesn't preclude also choosing any other—unless there are in- sufficient funds available to do them all. In that sense, they can be viewed as a portfolio of choices. The analysis and reasoning behind every individual decision will be relatively unaffected by past and future choices.

There are, however, circumstances in which investments compete with each other in their purpose so that choosing one will preclude the other. Typically, this arises when two alternative ways of solving the

same problem are being considered. Such investment projects are called mutually exclusive. The significance of this condition will become apparent when we discuss some of the specific examples later on. A similar condition can, of course, arise when management sets a strict limit on the amount of spending, often called capital rationing, which will preclude investing in some worthy projects once others have been accepted. This situation is quite common, because companies will more often than not find their funding potential limited, whether due to debt proportions that already are at target levels, fluctuations in profitability, or exercising caution in preserving cash flow for yet unspecified needs.

Another type of investment involves sequential outlays beyond the initial expenditure. For example, any major capital outlay for plant and equipment also might entail additional future outlays for major maintenance, upgrading, and partial replacement some years hence. These future outlays—to which the company is committing itself by the initial decision—must be formally considered when the initial analysis is made. Another example is the introduction of a new product or service with high growth potential, where additional working capital and perhaps future capacity expansions are a natural consequence of the decision to proceed.

The most logical evaluation of such investments comes from taking into account the whole pattern of major outlays recognizable at the time of analysis. If this isn't done, such a project might be viewed more favorably than a more straightforward one, because a number of future negative cash flows have been left out of the cash flow pattern. Moreover, if the project is chosen, management could become trapped into having to approve these unanticipated future outlays as they arise later—on the argument that these incremental funds are clearly justifiable because the project is "already in place." While that argument might be true given the earlier decision, the fact remains that the project originally was not judged on its full implications, and under those conditions might not have been justifiable to begin with. This type of incrementalism invariably causes undesirable economic results.

## Future Costs and Benefits

As we stated earlier, one of the key principles in making investment decisions is that the economic calculations used to justify any business investment must be based on projections and forecasts of future revenues and costs. It's not enough to assume that the past conditions and experience, such as operating costs or product prices, will continue unchanged and be applicable to a new venture. While this might seem obvious, there's a practical human temptation to extrapolate past conditions instead of carefully forecasting likely developments. We must at all times remember that the past is at best a rough guide, and at worst irrelevant for analysis.

The success of an investment, whether the time horizon is two, five, ten, or even twenty-five years, rests entirely on future events and the uncertainty surrounding them. It therefore behooves the analyst to

explore as much as possible the likely changes from present conditions in the key variables relevant to the analysis. If potential deviations in several areas are large, it might be useful to run the analysis under different sets of assumptions, thus testing the sensitivity of the quantitative result to changes in particular variables, such as product volumes, prices, key raw material costs, and so on. (Recall our references to this type of analysis in earlier chapters.) This task has been eased with the availability of soft- ware packages specifically designed for comprehensive sensitivity analysis, yet even basic spreadsheets make the effort of testing a variety of assumptions about key variables quite manageable.

The uncertainty of future conditions affecting an investment is the cause of the risk of not meeting expectations and being left with an insufficient economic return or even an economic loss—the degree of risk being a function of the relative uncertainty about the key variables of the project. Careful estimates and re- search are often warranted to narrow the margin of error in the predicted conditions on which the analysis is based, although removing all risk is clearly a futile endeavor. Since the basic rationale of making investments relies on a conscious economic trade-off of risk versus reward, as we established earlier, the importance of explicitly addressing key areas of uncertainty should be obvious. Identifying key variables also will be helpful in judging the actual performance of the project after implementation. This is because tracking of these elements is usually much easier than trying to reconstruct the full scope of the incremental project from the overall accounting data flow into which it has been merged.

## Incremental Cash Flows

The economic reasoning behind any capital outlay is based strictly on the incremental changes which result directly from the decision to make the investment. In other words, the test question must always be "what is different between the current state of affairs and the new situation introduced by the decision," and the differences will be reflected in the form of

① Incremental investment.
② Incremental revenues.
③ Incremental costs and expenses.

Moreover, proper economic analysis recognizes only cash flows, that is, the after-tax cash effect of positive or negative funds movements caused by the in- vestment. Any accounting transactions related to the decision but not affecting cash flows are irrelevant for the purpose.

The first basic question to be asked is: What additional investment funds will be required to carry out the chosen alternative? For example, the investment proposal can, in addition to the outlay for new equipment, entail the sale or other disposal of assets that will no longer be used. Therefore, the decision might actually free some previously committed funds. In such a case,

it's the net outlay that counts, after any applicable incremental tax effects have been factored in.

Similarly, the next question is: What additional revenues will be created over and above any existing ones? If an investment results in new revenues, but at the same time causes the loss of some existing revenues, only the net impact, after applicable taxes, is relevant for economic analysis.

The third question concerns the costs and expenses that will be added or re- moved as a result of the investment. The only relevant items here are those costs, including applicable taxes, that will go up or down as a consequence of the in- vestment decision. Any cost or expense that is expected to remain the same before and after the investment has been made is not relevant for the analysis.

These three basic questions illustrate why we refer to the economic analysis of investments as an incremental process. The approach is relative rather than ab- solute, and is tied closely to carefully defined alternatives and the differences be- tween them. The only data relevant and applicable in any investment analysis are the differential investment funds commitments as well as differential revenues and costs caused by the decision, all viewed in terms of after-tax cash flows.

## Relevant Accounting Data

Investment analysis in large part involves the use of data derived from accounting records, not all of which are relevant for the purpose. Accounting conventions that don't involve cash flows must be viewed with extreme caution. This is true particularly with investments that cause changes in operating costs. Therefore we must distinguish clearly between those cost elements that in fact vary with the operation of the new investment and those which only appear to vary. The latter are often accounting allocations which might change in magnitude but do not necessarily represent a true change in costs incurred.

For example, for accounting purposes, general overhead costs (administrative costs, insurance, etc.) might be allocated on the basis of a chosen fixed level of operating volume expressed in units produced. At other times, direct labor hours are the basis for allocation. In the former case, the accounting system will charge a new machine, which has a higher output, with a higher share of overhead than it charged the machine it replaces.

Yet it is likely that there was no actual change in overhead costs that could be attributed to the decision to substitute one machine for the other. Therefore, the reported change in the allocation is not relevant for purposes of economic analysis. The analyst must constantly judge whether there has been a change in the true cash outlays and revenues—not whether the accounting system is redistributing existing costs in a different way. A sound rule that helps prevent being trapped by allocations is to avoid unit costs whenever possible and to perform the analysis on the basis of annual changes in the various cost

categories expected to be caused by the investment decision.

We should point out that the growing use of activity-based costing, which we mentioned earlier, is a very positive development insofar as determining relevant data for economic analysis is concerned. Essentially a system which expresses the economic costs and benefits of activities, product lines, and organizational units, activity-based analysis and accounting establishes a flow of information that directly relates to economic choices and trade-offs. Based on a careful assessment of the physical flow of activities, the data collected and stored in the system are in most cases representative of the type of information that must be stipulated when analyzing the changes in revenues and costs brought about by a business investment. The nature of cost assessments and economic allocations is much more transparent than in customary cost accounting systems, although the need for judgment in selecting appropriate data still remains.

## Sunk Costs

There's a common temptation to include in the analysis of a new investment all or some portion of outlays that occurred in the past, expenditures that perhaps were incurred preparatory to making the new commitment being considered. No basis in economic analysis exists, however, that would justify such backtracking to expenditures that have already been made and that are not recoverable in part or as a whole. Past decisions simply do not count in the economic trade-off underlying a current investment decision. The basic reason for this is that such sunk costs, even if they are connected in some way to the decision at hand, simply cannot be altered by making the investment now.

If, for example, significant amounts had been spent on research and development of a new product in excess of original plans, the current decision about whether to invest in new facilities to make the product should in no way be affected by those sunk costs. Perhaps the earlier decision to do research and development in retrospect turned out to be less rewarding than expected because of such overspending, and shouldn't have been made at the prior decision point. But now the only relevant question is: If the new investment required to exploit the results of such past research appears economically justified on its own merits from future benefits, it should be undertaken at the present time. There's nothing that can be done about sunk costs, except to learn from any mistakes made.

Another, more specialized situation arises, however, when an incremental productive investment is added to a group of operating facilities, all of which are supported by a large past infrastructure investment, such as power generation, shipping docks, service networks, and so on, which is not fully utilized at this point. The infrastructure might have been sized to allow for the addition of several future operating investments before the infrastructure itself has to be expanded. In such a case, it'll be relevant to make an economic allocation of an

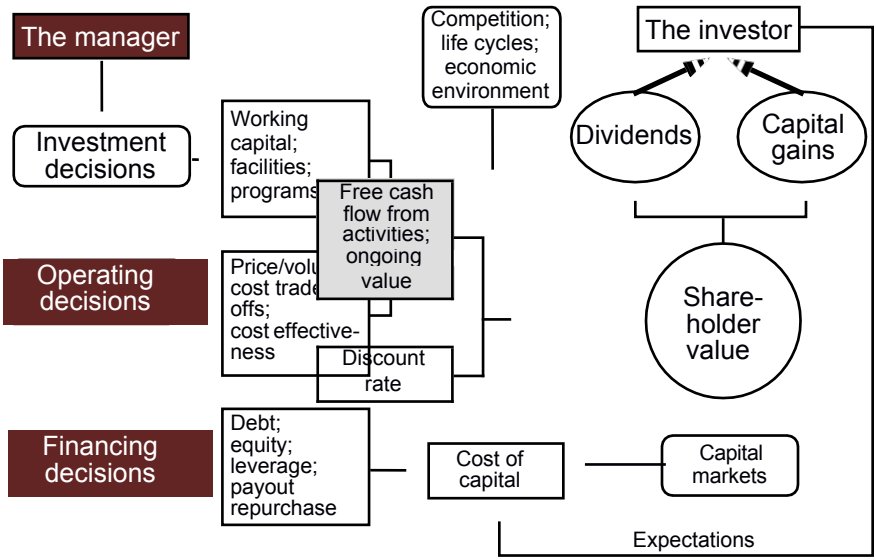
appropriate share of the cost of the existing infrastructure as part of the investment, and to do the same with other similar alternative productive investments, if the strategy of the company calls for continued expansion in the foreseeable future. In contrast, if the current operating investment proposal were the only remaining planned addition, the infrastructure in place would be irrelevant and sunk in the true sense of the word, because no other use of the excess infrastructure was envisioned.

Somewhat differently, if the productive investment triggered another round of infrastructure expansion as part of a long-term growth strategy, a share of such infrastructure would have to be considered part of the productive investment requirements, with other portions allocated to other current or future expansion investments planned. Again, the effort here must be to judge the specific investment proposition on its full set of implications, and to view the specific proposition within the larger context of the company's strategy and future plans.

Economic decisions are always forward-looking and must involve only those things that can be changed by the action being decided. This is the essential test of relevance for any element to be included in the analysis.

FIGURE 12–3

Shareholder Value Creation in a Cash Flow Context



# Basic Inflation

Throughout this book we've referred to inflation's distorting effects on financial decisions and analysis, we'll offer a brief commentary on the ba- sic nature of the often misunderstood phenomenon of inflation. Financial transactions are carried out and recorded with the help of a common medium of exchange. Variations in this medium will affect the numerical meaning of these transactions. But we know that underlying the transactions are economic trade-offs; that is, values are given and received. We must be careful not to confuse changes in economic values with changes in the medium used to effect and account for these transactions. We'll examine the ramifications of this important distinction in several contexts below.

## Price Level Changes

The economic values of goods and services invariably change over time. The reason for this is as basic as human nature: The law of supply and demand operates, in an uncontrolled market environment, to increase the value of goods and services that are in short supply, and to decrease the value of those available in abundance. This shift in relative values takes place even in a primitive barter economy that doesn't utilize any currency at all. The ratio of exchange of coconuts for beans, for example, will move in favor of coconuts when they're scarce, and in favor of beans when these are out of season.

Many seasonal agricultural products go through a familiar price cycle, be- ginning with their temporary unavailability, on to the first arrivals in the market- place, and eventually to an abundance before they become unavailable again. This phenomenon is not limited to seasonal goods, however. Natural resources go through cycles of availability, be it from the need to set up the expensive infra- structure to exploit new sources as old ones expire, or from extreme concerted actions such as OPEC's moves to limit production that caused world oil prices to surge because of the cartel's control of over half the world's production. As alternative sources of oil and other energy were stimulated by the high prices, the cartel's power began to wane, hastened by inevitable squabbles among the member countries trying to look out for their own interests—and oil prices settled on a much lower, more sustainable level.

We know that the economic value of manufactured goods is similarly subject to the law of supply and demand. For example, as new technology emerges in the market, such as the first digital watches or compact disk players, or successive waves of innovation in electronic chips and other components, the price commanded by the early units will be well above the prices charged later on, after many suppliers have entered the market and competed for a share of industrial or

consumer demand. The same is true of all goods and services for which there are present or potential alternative suppliers, domestic or international.

Our point here is that the economic value underlying personal, commercial, and financial transactions is determined by forces that are largely independent of the monetary expression in which they're recorded. As we'll see, an analysis of price level changes ideally should separate the change in price levels caused by shifts in economic value from those caused by changes in the currency itself. Ac- curate separation of the two is difficult in practice, but necessary for understand- ing the meaning of financial projections.

## Monetary Inflation

Another phenomenon affecting transaction values is any basic change in the purchasing power of the currency. There are many reasons underlying the decline or strengthening of a currency's value as a medium of exchange. One of the most important factors causing inflationary declines in purchasing power is the amount of currency in circulation relative to economic activity. If the government raises the money supply faster than required to accommodate the growth in economic activity, there will literally be more dollars chasing relatively fewer goods and services, and thus the stated dollar prices for all goods and services will rise—even though the basic demand for any specific item may be unchanged.

This description is oversimplified, of course. A great many more factors affect currency values. One of these is the impact of government deficits and the way they are financed. Another is the value of the dollar relative to other currencies and the impact of exchange rates on international trade. In addition, international money flows and investment in response to more attractive investment opportunities cause shifts in the values of national currencies over and above the effects of the individual countries' fiscal and economic conditions. Union negotiations, wage settlements, and cost of living adjustments in wages, pensions, and social security are also related to changing currency values. Every nation's central bank—the Federal Reserve bank in the case of the United States—is vital in the process because its policies affect both the size of the money supply and the level of interest rates. These in turn affect government fiscal policies, business activity, international trade and money flows, etc. And ultimately, serious declines in the value of a currency can also affect the basic supply and demand of goods and services, as, for example, when customers and businesses buy ahead to beat anticipated price increases.

The point here isn't to systematically analyze inflation and its causes, but rather to make the basic distinction between economic and monetary changes influencing price levels. Suffice it to say that price level changes due to monetary effects are largely the ones that distort economic values of personal and commercial transactions. If monetary conditions remained stable (that is, if the amount of currency in circulation always matched the level of economic activity), price level

changes would reflect only changes in economic values—something we've agreed is at the core of management's efforts to improve the shareholders' economic condition. Because monetary stability is an unrealistic expectation, how- ever, the challenge remains to make the analysis of the actual conditions affecting prices and economic values truly meaningful.

## Nominal and Real Dollars

Business and personal transactions are expressed in terms of *nominal* dollars, also called current dollars, that reflect today's prices, unadjusted or altered in any way. For accounting purposes, nominal dollars are used every day to record transactions. However, when dollar prices change over time, the amounts recorded in the past no longer reflect current prices, either in terms of the underlying economic values or in terms of the value of the currency at the moment.

To deal with changes in the value of the currency, economists have devised *price indexes* intended to separate, at least in part, monetary distortions from fluctuations in economic value. Such an index is constructed by measuring the aggregate change in the prices of a representative group of products and services as a surrogate for the change in the value of the currency. Yet we already know that any goods and services chosen for this purpose are themselves also subject to changes in supply and demand, apart from mere currency fluctuations. But there's no direct way to measure changes in currency values as such. Inevitably, there- fore, the price index approach involves mixing demand/supply conditions and currency values, and the only hope is that the selection of goods and services em- ployed in a given index is broad enough to compensate somewhat for the under- lying demand/supply conditions.

The *consumer price index*, a popular index of inflation, is calculated in this fashion. It's based on frequent sampling of the prices of a "market basket" of goods and services purchased by U.S. consumers, including food, housing, cloth- ing, and transportation. The composition and weighting of this basket is changed gradually to reflect changing habits and tastes, although there is much room for argument about how representative and up-to-date the selection is. Another popular index applicable to business is the *producer price index*, based on a representative weighted sampling of the wholesale prices of goods produced. Other indexes deal with wholesale commodity prices and a variety of specialized groupings of products and services.

The broadest index in common use is applied to the gross national product as a whole, the so-called *GNP deflator*, which expresses the price changes experienced in the total range of goods and services produced in the U.S. economy. Based on broad statistical sampling, the current level of the GNP deflator is announced frequently throughout the year in connection with other economic statistics about business and government activity. All of these indexes are prepared by calculating the changes in prices from those of a selected base year, which is

changed only infrequently to avoid having to adjust comparative statistical series whenever the base year is changed.

The price indexes are used to translate nominal dollar values in government statistics and business reports into *real dollar values*. This involves converting nominal dollar values to a chosen standard so that past and present dollar transactions can be compared in equivalent terms. For example, to compare this year's performance of the economy to that of last year, we may choose to express current economic statistics using last year's dollars as the standard. Last year's dollars are then called real, and today's data are expressed in these real terms. To do this, we simply adjust today's dollars by the amount of inflation experienced since last year. If inflation this year was 3.0 percent over last year as expressed in the GNP deflator, every nominal dollar figure for this year would be adjusted downward by 3.0 percent. The result would be an expression of this year's results in terms of real dollars, which are based on the prior year.

A real dollar is thus simply a nominal dollar that has been adjusted to the price level of a particular stated base year, using one of the applicable price indexes. The base chosen can be any year, as long as past or future years are consistently stated in terms of the currency value for the base year. In fact, real dollars are often called *constant dollars*, a name that simply recognizes that they're de- rived from a constant base. The process of adjustment has the following effect: During inflationary periods, the real dollars for the years preceding the base year will be adjusted upward, while the real dollars of future years will be adjusted downward. The reverse is true, of course, if the period involves deflation instead. To illustrate, let's assume that the following price developments took place during a five-year period. We're using the producer price index (PPI). This index was constructed on the basis of Year 0. In the following table, we've set Year 3 as

the base year for our analysis.

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Producer price index (Year 0) . . . . . | 1.09 | 1.15 | 1.21 | 1.25 | 1.33 |
| Producer price index (Year 3) . . . . . | 0.90 | 0.95 | 1.00 | 1.03 | 1.10 |
| Real value of $100 (Base Year 3). . . . . | $111 | $105 | $100 | $97 | $91 |

Note that two steps were involved. First, the producer price index had to be adjusted for our chosen base, Year 3. That is, the index had to be set at 1.00 for Year 3 and then all index numbers were divided by the value of the index for the base year, which is 1.21. (However, the index could have been constructed on any other year because an index measures price changes year by year from whatever starting point is chosen.) The next step was to divide the adjusted index values on the second line into the nominal dollars of each year. We chose to use the amount of $100 for all years, but the process applies, of course, to any amount of nominal dollars in any one of the years. Using a single

round figure permitted us to illustrate the shifts in value with a same dollar amount.

The example clearly shows that a dollar's purchasing power in Year 4 versus Year 3 declined by 3 percent. The implication from a business point of view is that a company must increase its nominal earnings power by 3 percent in order to keep up with inflation in the prices it must pay for goods and services. Anything less than that will leave the owners worse off.

This simple process allows us to convert nominal dollars into inflation- adjusted real dollars. Problems arise in choosing the proper index for a business situation, and also from the fact that the index embodies changes in economic value as well as in currency value, as we discussed earlier. Much thought has been expended on refining the process of inflation adjustment, but in the end, the judg- ment about its usefulness depends on the purpose of the analysis and the degree of accuracy desired.

## Applications of Inflation Adjustment in Financial Analysis

Restatement of company data or projections in real dollar terms is at times useful to assess whether the company's performance has kept up with shifts in currency values. Such restatement may be used to value a company's assets and liabilities, or to show the real growth or decline in sales and earnings. As we observed, publicly traded companies are obligated to include an annual inflation-adjusted re- statement of key data in their published shareholder reports.

Much effort can be spent on adjusting financial projections for inflation, particularly in the area of capital investment analysis. There are no truly satisfactory general rules for this process, however. When an analyst must project cash flows from a major capital investment, the easiest approach continues to be projection in nominal dollars, taking into account expected cost and price increases of the key variables involved, tailored specifically to the conditions of the business. The discount standard applied against the projection must also be based on nominal return expectations that, of course, embody the inflationary outlook.

To refine the analysis, many companies prepare projections in real dollars, attempting to forecast the true economic increases or decreases in costs and prices. Then an appropriate inflation index is applied to the figures to convert them into nominal dollars. The problem is, however, that the margin between revenues and costs may widen unduly, simply because the same inflation index is applied to the larger revenue numbers and to the smaller cost numbers. Often arbitrary adjustments have to be made to keep the margin spread manageable.

Another approach involves developing projections expressed in real dollars and discounting these with a return standard that has also been converted into real returns. The result will be internally consistent as far as the project is concerned. However, the result is not readily

comparable with the current overall performance of the business—recorded and expressed in nominal dollar terms—unless the company has also found a way to convert and measure ongoing performance in real dollar terms. Some companies are beginning to experiment with such re- stated reports and measures, but the approach involves a massive effort, both in terms of data preparation and education of personnel generating and using the projections and performance data. It's instinctively easier to think about business in nominal dollars than real dollars, and progress in this area is being made only gradually. The complexities are such that the financial and planning staffs of companies wishing to use this approach face a lengthy conceptual and practical con- version problem.

## Impact of Inflation

To restate quickly, the basic impact of inflation—and the much less common opposite situation, deflation—is a growing distortion of recorded values on a company's financial statements, and an ongoing partial distortion of operating results. In terms of cash flows, inflation distorts a company's tax payments if the taxes due are based on low historical cost apportionment, and it results in a cash drain if dividends are higher than they would be if real-dollar earnings were considered, to name two examples. Inflation also affects financing conditions, particularly the repayment of principal on long- term debt obligations. As we observed before, however, the mediating influence of interest rates—which respond to inflation expectations—tends to prevent windfalls for the borrower looking to repay debt with "cheap" dollars. Normally, over the long run, distortions from inflation affect lenders and borrowers alike. Relative advantages gained by one over the other are only temporary.

Overall, the subject of inflation adjustments continues to evolve in financial analysis. It's unlikely that totally consistent methods that are generally applicable will be found.

**Tanzania Investment and Consultant Group Ltd**

TICGL Firm we specialize in all aspects of Project Development , Investment and Business consulting.

TICGL services package business consult , Project Development and investment opportunities so that we satisfy the needs of our Clients - Entrepreneurs, Business Leaders and Investors . In particular, the TICGL offers a wide range of services both in Planning and Economy, Finance and Investment, Research, Monitoring and Evaluation.

TICGL provides comprehensive technical services in:

① Management and Strategy
② Research and Innovation
③ Capacity Building and Training

*Amran Bhuzohera*
*Senior Planning Advisor-TICGL*
*website: www.ticgl.com*
*Email: amran@ticgl.com*

> *Managing a successfully Business requires an understanding of the systematic relationships among the key elements in the areas of investment, operations, and financing, and the impact of decisions on these relationships. Total systems thinking is a critical requirement both in setting strategies and in their execution.*

# FINANCIAL-ECONOMY ANALYSIS

www.ticgl.com