

**An Empirical Framework and Teaching Note for Introducing Financial Management in the First
MBA Core Class**

by

Paul Laux

Case Western Reserve University

Betty J. Simkins

Oklahoma State University

Abstract

The purpose of this teaching note is to introduce MBA students to the issues: “What do firms do about financing, investing, profiting and payout?” during the first week of a core MBA class. By introducing the students to these financial management issues together with economy-wide financial ratios at the beginning of the course, we strive to provide students intuition and insight into the theory and practice of financial management and remove some of the naïveté about the subject. As a result, students better understand the ‘what, why and how’ of financial decision making as it is covered throughout the course.

Key Words: MBA course, teaching note, financial management

"He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may be cast."

Leonardo da Vinci, 1452-1519

INTRODUCTION

This saying applies well to finance education. Theory and practice go hand-in-hand so that students understand the what, why and how of financial decision making so that they can perform at a higher level no matter where 'they may be cast'. Nowhere is this more true than in the MBA classroom. The first week in a course is critical for setting the stage and communicating a framework, in essence a vision, for the semester. Often times, this critical first week is hectic for the instructor with last minute semester planning details and distractions from other university responsibilities and commitments. As a result, it is more likely that housekeeping and contracting details are conveyed at the outset of a course, as opposed to a vision of the course.

The finance pedagogy literature reflects a concern for effective teaching and communication in finance courses. For example, articles have been written about opening a course [Bruner 1999], teaching the undergraduate introductory finance course (see, for example, Cooley and Heck, 1996, Erickson, 1999, Ardalan, 1998), about pedagogical aspects of teaching finance theory [Escarraz and O'Neill, 1997, and Borokhovich, Bricker, and Simkins, 1994), about specific applications and issues for teaching the undergraduate or graduate course, or about the case teaching method [Bruner, Gup, Nunnally, and Pettit, 2000].

On the other hand, little has been written about teaching approach for introducing the first core MBA finance class. Anyone who has taught this class knows the challenges it presents. *"Without a vision, the people are lost."* This proverb Bruner [2000] quotes summarizes what is essential in the first critical week of the core MBA finance class. Our note strives to fill this gap in the finance education literature and hopefully provide an insightful teaching note that others teaching this class can utilize.

The teaching note has two mutually-reinforcing purposes. First, it presents an organized vision of finance and of a first course in finance that is consistent with the mainstream views of the profession. Second, the note puts MBA students on a path to having a quantitative feel for business realities, so that they start their thinking about financial management in a way that is both rigorous and practical. We have designed this note for the first week of a core MBA finance class. The central theme of the note is to introduce the issues: *What do firms do about financing, investing, profiting and payout?* This note focuses on defining finance management, provides some examples of the kinds of issues that concern managers who desire to increase firm value, and a visual overview of the time series of economy-wide results on financing, investing, profiting, and payouts for the US economy. In essence, this note provides a very high-level overview of financial management – the big-picture view from the 30,000 feet level. By introducing the students to financial management issues together with economy-wide financial ratios at the beginning of the course, we strive to provide students intuition and insight into the theory and practice of financial management and remove some of the naïveté about the subject. Furthermore, consistent with MBA curriculum and AACSB guidelines, there is an increasing demand for students to be able to integrate courses so that they have a deeper and more intuitive understanding of the linkage between financial decision making and the economics of business. We have heard too many case presentations by students that, for example, discuss the size of the potato chip market in Brazil without a feel for the size of the Brazilian population (e.g., just how many bags of chips could we expect to sell to every man, woman and child in the country?).

This teaching note is organized as follows. The next section describes the learning objectives of the teaching note and describes our “FARE” method of teaching. After that, the teaching note is presented which addresses the issues: *What do Firms do About Financing, Investing, Profiting and Payouts?*. The final section concludes.

LEARNING OBJECTIVES OF THE TEACHING NOTE

The pedagogical objectives of this teaching note are as follows.

1. Understand what finance is;
2. Understand why finance focuses first on value-maximization for owners;
3. Gain familiarity with the major decisions and issues of concern for financial managers and value-maximizing non-financial managers;
4. Gain a quantitative feel for the outcomes of firms’ major decisions on an economy-wide basis. This is a first step in the student’s development of informed benchmarks to guide thinking in practical situations.
5. Place those major decisions and issues into the intellectual organization of the MBA core course.

Teaching theorists think of learning as an order progression through several stages. For example, Bloom’s taxonomy of cognitive behaviors presents six levels of learning (e.g., knowledge, comprehension, application, analysis, synthesis, and evaluation) which is discussed in Bloom, Engelhart, Furst, Hill, and Krathwohl [1956]. We employ what we refer to as the FARE method of learning that is consistent with learning in progressive stages. More specifically, the FARE approach consists of four aspects listed below. This teaching note focuses on the first part of the FARE method: Fundamentals.

(1) F is for Fundamentals, the basis information the student needs to understand a new topic, and put it into it’s right place in their framework of knowledge. At this stage, there may be a lot of intellectual discomfort, depending on the topic.

(2) A is for Application. This is where the student “gets his/her hands dirty,” and more. It means gaining some skill and comfort by applying what the student has learned. During this stage, the student’s intellectual discomfort should build but later begin to dissipate.

(3) R is for Reinforcement. This means reviewing and taking stock of learning, in view of the results of the student’s applications. By this point, he/she will start to get a feeling that “I’ve got it,” or at least “I see the main idea.” Problem solving is very useful here.

(4) E is for Extension. This is where the student applies learning to an out-of-context situation, or tries to build on its foundation. In this stage, the student is leveraging his/her learning to do something beyond its boundaries. This is what strong managers do.

In the course we tell students that if they work through all the stages, they will FARE well in the course and increase their opportunities. In other words, learning is about FAREing well.

We use the teaching note that follows in the next section as the core of the first week’s discussion in our MBA core class. The teaching note has been provided to students ahead of time so that they can be properly prepared. Given that some time is inevitably spent on state-setting and administrative matters, we have generally devoted about two-and-a-half hours of class time to discussing the teaching note. Table 1 outlines the breakdown of time and topics that we have used.

[Insert Table 1 about here.]

One of us has used a condensed presentation on an experimental basis. Given that experience, it seems that the heart of the teaching note could be covered in a one-and-a-half hour session by condensing three aspects of the presentation. First, some time could be trimmed from the introduction by skipping the definition of finance, and moving directly to the discussion of the major decisions of the firm. Second, most of the discussion of value creation could be relegated to a reading assignment, possibly augmented by some on-line discussion in a web-based bulletin board format. One of us has tried that, and a fairly lively discussion resulted. Third, the discussion of the opportunity cost of capital could be jettisoned entirely, to be introduced later in the course. The result is a module that describes financial management in terms of the major decision areas of the firm, and links those decision areas to measurable outcomes.

THE TEACHING NOTE

What is Financial Management?

Nobel laureate Bill Sharpe writes that anyone who can provide a precise definition of his or her discipline either possesses a skill of little importance or is incredibly naïve. Finance is a skill of substantial importance, and our naïveté has been gradually eliminated by interactions with MBA students. Therefore, we will not attempt a precise definition. Rather, we will provide a broad one. Discussions of the components of the definition are contained in Table 2.

[Insert Table 2 about here.]

Finance: Techniques & Markets for Managing & Understanding the creation of Value for Owners in Risky Environments, especially via Contracting.

Financial management, the part of finance that is the topic of our course, is a bit easier to characterize than is finance more generally. It consists of making value maximizing decisions about capital.¹ The productive resources of a corporation, proprietorship, family, or other entity comprise its capital. The most essential of decisions regarding capital are how to obtain it and how to satisfy the claimholders from whom financing is obtained (financing decisions and value-disbursement decisions) and how to employ it (investment decisions and operating decisions).

Figure 1 shows the basic question inherent in each decision area, and emphasizes that the goal of the decisions is value-maximization. The paragraphs that follow characterize each decision area. Appendix 1 provides a definition of all terms used in the figures.

[Insert Figure 1 about here.]

Financing Decisions

For a business organization, financial contracts such as stocks, bonds, loans, and other securities are marketed to (ultimately) individuals. Banks and other financial institutions may serve as crucial intermediaries, because of their special expertise, information, or large pool of available funds. When a firm raises money via financial contracts, it has decided to use **external financing**. External financing is particularly important for growing firms whose business model is in the early stages of being implemented. Many dotcom firms are an extreme example. In contrast, most firms use **internal financing** most of the time. That is, they rely on cash produced in the course of doing business as the

main source of funds to maintain and grow the business.² The point of financing decisions is to generate the cash resources necessary to purchase the many types of assets needed to run the business.

Investment Decisions

The funds raised pursuant to a firm's financing decisions are invested in physical and human capital, i.e., productive assets, which are used to generate goods and services for sale to individuals. When we speak of the investment decision in managerial finance, we are referring to the decision to invest in either tangible long-lived real resources (plant, property, equipment, and the like) or intangible long-lived real resources (patents, trade-marks, business relationships). This contrasts with an individual's investment decision—which might be centered around financial assets such as stocks and bonds, which are claims on the benefits generated by productive assets, as opposed to the productive assets themselves. For a firm, the point of investment decisions is to choose assets that will generate cash revenue, and, ultimately, new value.

Operating Decisions

Coincident with and subsequent to its investment decision, the firm must decide how to employ the productive assets it has obtained. Additionally, it must make ongoing decisions about how to obtain and use shorter-lived resources. The point of operating decisions is to use long-lived assets, and to obtain and use shorter-lived resources, to generate value.

Value-disbursement Decisions

The firm that creates value will, at some point, need to pay it out to the parties who have financed it (and even to some parties who have not financed it, such as the government via taxes). Some disbursement decisions are essentially pre-determined at the time of a financing decision. An example of such a pre-determined disbursement decision is the decision to make interest payments on a loan. Other disbursement decisions are only loosely connected to the original financing decision. An example is the decision to pay dividends. The point of value-disbursement decisions may be to provide a stream of cash benefits that is uniquely attractive to the firm's suppliers of financing, or to signal confidence in the firm's ability to generate cash. Alternatively, the value-disbursement decision may be simply the residual effect of the other three major decisions. Once a firm has decided on financing, investing, and operating, the amount it can pay out to stockholders is completely determined—the firm simply pays out what is left over.

Financing, investing, operating, and value-disbursement decisions are obviously interlinked. Most obviously, firms make investment decisions with operating decisions in mind. Similarly, firms make financing decisions with value-disbursement decisions in mind. Additionally, the lines between these decision areas are a bit blurry in practice. In practical analysis, it is not always useful to make fine distinctions. In our discussions, we will sometimes find it useful to focus on the investment/operating decision as a single unit.

What Decisions Do Firms Make? The Big Picture(s)

Our coverage of finance will be mainly firm-level and normative. Nonetheless, at the outset, it is useful to have a sense for the macro-level, descriptive evidence on the major decision areas. In this section, the big picture, i.e., a general sense for what companies have done, is the point. At early stages of your finance education, it will behoove you to insist that the vocabulary not get in your way. You will develop a feel for the vocabulary as we go along.

Investment and Financing Decisions

Figure 2 shows aggregate investment and financing decisions by non-financial (i.e., no commercial banks) sizeable public US corporations over the past 20 years. The focus on US companies is due to data availability, not ethnocentrism on our part.³ The precise definitions of items in the figure follow those in a recent paper in the *Journal of Finance* by Gene Fama and Ken French (December 1999). Consider first the plot labeled “Investment.” This shows the proportion of **pre-existing invested book capital**, or simply **invested capital**, that non-bank US companies with publicly-traded stock have invested in their own operations. At this early stage of our discussion, the technical definition of invested capital is not too important; broadly, it is the total amount that has previously been invested in the company from all sources. “All sources” means stock investors, lenders, and all other suppliers of funds combined.

[Insert Figure 2 about here.]

US companies have generally made new investments that add to invested capital, i.e., increased their total previous investment from all sources, at between 10 and 15 percent per year. The level of new investment has become more volatile in recent years. One can very roughly see evidence of economy-wide recessions in the investment data. Investment dips around the early-middle 1980s and the early 1990s.⁴

Concept Question: Figure 2 shows the aggregate investment decisions of US firms. Firms vary widely in their decisions. Some of the differences are systematic, depending on firms’ industries and stage of development. How would you expect the Investment plot to look for an electric utility? For a retailer? For a dot.com?

How has this investment been financed? Figure 2 also answers that question. The dominant source of financing has been “Recent Cash Earnings.” Again, the precise definition is not important at this early stage; it suffices to say that this refers to internal financing out of the value created by the year’s activities. *Very* roughly, this means “past profits.” Judging from the chart, around $\frac{3}{4}$ or more of the investment in most years comes from this source. In general, the next most common source of financing is **debt** (i.e., loans or **bonds**). It has long been so. In one year, 1988, debt is the single most common source of financing, then drops to fairly low levels in the early 1990s. Some of you may remember the prominence of “leveraged buyouts” and “junk bonds” in the late 1980s—these very prominent debt-related phenomena are part of the reason for the prominence of debt during those years. In contrast, the early 1990s were a very quiet time in the market for corporate control (buyouts and takeovers) and a bust for the junk bond market.

Following recent cash earnings and new debt, net issues of new equity (i.e., sales of stock) are the next most common source of financing for new investment. These issues include both **initial public offerings (IPOs)** by companies that have never sold stock before, and **seasoned equity offerings (SEOs)** by companies that have previously “floated” stock. Note that equity issues are relatively small. Companies do not like to “visit the equity markets” unnecessarily. There are several reasons for their reticence. There are lots of expensive intermediaries to pay (like **investment bankers**, whose job it is to help market equity issues). The ownership rights of previous shareholders are “diluted” when new shareholders become part owners of the company. And SEOs typically result in a stock price decline of around 3 percent—the market participants tend to say “If the company is selling shares, it might be doing it because the managers know that the market price is too optimistic. I’ll only buy at a lower price.”

In some years, issues of new equity are actually negative. That means companies bought back more of their own stock from shareholders as compared to their issues of new equity. Since shareholders as a

group own a firm's internal funds (the "Recent Cash Earnings" in the figure), as well as provide its new equity financing ("New Sales of Equity" in the chart), it is clear that shareholders are the largest single group providing financing of new investment in any one year.

Concept Question: What do you think the financing plots would look like for a dotcom? For a steel company?

One can see the long-term result of this fact by examining Figure 3. Figure 3 is based on the same broad sample of US public companies as the previous figure. However, rather than showing the sources of new investment in any one year, this figure shows the total effect of financing over firms' entire histories. The chart is titled "**Capital Structure**," which means, roughly, what is the breakdown of firms' sources of capital, or funding, aggregated over time.

[Insert Figure 3 about here.]

"**Book equity**," or, roughly, historical investments by shareholders, accounts for between 50 and 80 percent of invested capital, depending on the year. In other words, equity shareholders have provided between 50 and 80 percent of corporate funding over history up to that point. **Long-term debt** is next most prevalent.⁵ Note that the role of long-term debt increased in the 1980s, as the role of equity declined. That impression is partly due to changes in accounting rules and partly a reflection of companies' choices.⁶ **Short-term debt** accounts for fairly small (but increasing) share of companies' aggregate funding over history. Some minor and specialized sources of financing are omitted from the figure.

Investment and Operating Decisions

In the section above, investment decisions are examined in counterpoint to financing decisions, for investing is what a firm does with the funds raised by financing. In this section, economy-wide outcomes on investment decisions are examined in conjunction with outcomes on operating decisions. As we said earlier, in many practical situations investment and operations are closely related. Figure 4 depicts the history of a generic measure of outcomes in each of these important decision areas.

[Insert Figure 4 about here.]

Sales relative to net assets (often called **net asset turnover**) measures firms' success in generating sales with the assets in which they have invested.⁷ This measure of investing success has generally declined over the years. The trend is all the more remarkable when one considers that many of the "assets" discussed as crucial to the "new economy"—people, ideas, business processes—are not reflected in the accounting data. The real decline in turnover is probably even more dramatic than the figure shows.

The story on operating outcomes is much more positive. After-tax **operating cashflow**, as a proportion of sales, measures the proportion of the cash from its sales that firms are able to retain after paying out-of-pocket costs. This proportion follows an upward trend over time, though there is a sharp dip around the recession of the early 1990s (when sales fell more than costs). One explanation for the upward trend is perhaps the extra productivity and efficiency that has resulted from contemporary communications and computer technology.

Concept Question: Would the net asset turnover plot would look for an airline likely be higher or lower than the average shown in the figure? What about for a grocery store?

Value-disbursement Decisions

After paying all out-of-pocket costs to employees, suppliers, and so on, the firm eventually “decides” what cash to retain and what to pay out. Note that what the firm retains will become, by default, its new investment. Some disbursement “decisions,” like taxes, are barely deserving of the term. Others, like **interest payments**, are essentially made in advance, at the time of the financing decisions. Still others, like payment of **cash dividends** to shareholders, are truly discretionary at each date. Note, though, that even the dividend decision can be regarded as a residual effect: after a firm runs its operations, decides what to invest, decides on any new financing, and pays other disbursements, then dividends are what’s left.

Figure 5 depicts major disbursement outcomes: taxes, interest, and dividends. For comparability, all the items are shown as a proportion of the cash flow produced by firms’ operations, prior to taxes.⁸ Note that taxes generally declined over the 1980s, and then increased a bit in the 1990s. This reflects changes in federal income tax laws. Recently, firms have been taxed about 20 to 25 percent of cash generate. Interest payments have been fairly stable, except for a sharp temporary increase around the late 1980s and early 1990s. This blip reflects the combined effects of buyouts, junk bond issuance, and recessions—all discussed earlier. Firms’ interest payments have recently amounted to 15 to 20 percent of the cash they generate. Similarly, dividend payments have remained steady at about 15 to 20 percent of cash generated.

Concept Question: What do you think the interest and dividend plots would look like for a dot.com firm? How might they look for an electric utility? For an auto maker?

[Insert Figure 5 about here.]

The Really Big Picture: Value Creation for Owners Finance Philosophy: “Maximize the owner’s value” is the goal that finance recommends to a firm’s managers.

The previous section examines the outcomes of US firms’ financing, investment, operating, and value-disbursement decisions. These outcomes are really only components and contributors to the outcome that is most central to every company’s reason for existence. That central outcome is value creation. By creating more value than they destroy by consuming resources, companies can justify their existence and the existence of the extensive capitalist system that supports them.

In its most literal sense, finance’s value maximization rule means “make decisions so that the owners (shareholders, in the case of a public company) become as rich as possible.” Whatever the opinion as to *whether* shareholder wealth maximization should be the controlling goal of the firm, a manager must face the additional question: What *is* the controlling goal of the firm? The answer varies across economies. In most common-law countries (a class which includes Great Britain and most former-British colonies, including the US), shareholder interests tend to dominate. In other nations (including France, Germany, and Japan), the interests of debt suppliers (especially banks) and employees tend to be relatively more emphasized. That said, the desire of non-US companies to raise equity funds in the large and liquid US market has led to an increased emphasis on shareholder interests among non-US companies.

Concept Question: What do you think of shareholder value maximization as the central goal for managers and companies? Is this a good or bad idea? Why? Try to drive your thinking to a conclusion: Even supposing that value maximization and other goals often coincide, what should be the dominant goal when they do not?

Understanding that managers have strong incentives to look out for their own interests and to use firm resources to enhance their own work lives, shareholders use a variety of **incentive-alignment** mechanisms to promote shareholder wealth maximization. Compensation contracts are often explicitly designed to reward managers for decisions that maximize shareholder wealth. Mechanisms include pay-for-performance, managerial stock ownership, and stock option plans. Such plans help, but cannot fully align the incentives of managers and shareholders. A major problem is that firm value changes for reasons other than managerial actions. For example, a recent front-page article in the *Wall Street Journal* related the complaint of a technology company CEO that his company's stock price (and, by implication, his compensation) has recently been pounded, even though his company is having a great year. The recent downward revision in the prices of technology stocks has more to do with the market's judgment about the entire sector than it does about the fortunes or foibles of any one company.

A large debt load also imposes discipline on managers. For example, in 1989 the president of Sealed Air, Inc. (which probably made the bubble wrap used to protect your last graduation present and the foam under the last steak you bought at the grocery) borrowed heavily to **lever** the firm and paid most of the cash out to shareholders [see Wruck and Barry, 1997]. His explicit purpose was to impose debt obligations that would force the firm to "run a tight ship." He imprinted cards for employees to proclaim that cash flow was the company's number two goal, right after pleasing the customer. The immediate result was that the share price fell by less than the amount of money paid out to shareholders, for an immediate total gain to them. Furthermore, the share price proceeded to rise afterwards.

In addition to incentive-alignment mechanisms, shareholders also employ a variety of **monitoring** mechanisms to enforce equity value maximization. Perhaps the most prominent of these is the oversight of an independent board of directors. Direct shareholder activism, especially on the part of institutional investors, has also been on the rise. For example, Sears & Roebuck's decision to divest non-core businesses was largely driven by shareholder dissatisfaction.

The **markets for corporate control and for managerial labor** also discipline managers. Shareholders who are very unhappy with management decisions can tender their shares to a party interested in replacing the current management, or replace them directly.

Understanding all this, top managers are increasingly explicit about their goal of increasing shareholder wealth. Some approach this indirectly, as Coca-Cola in an annual report: "To increase shareholder value over time is the objective driving this enterprise...[To accomplish this, however,]...growth in **earnings per share** and increased **return on equity** are still the name of the game." Others are more explicit, as Hillenbrand Industries in its annual report: "[The goal is to maximize]...shareholder value, [which] is created when a company generates **free cash flow** in excess of the shareholders investment in the business." Free cash flow means pretty much what you it sounds like—extra cash after all bills are paid; much more on this term later.

What about employees, the community, and other informal claimholders? One response is from Hershey's director of corporate financial planning: "[The] boss is the shareholder, and we don't lose sight of that...Yes, we know we have to take care of employees and customers, or we won't have them. It's all done with a focus on improving shareholder value."

<p>Concept Question: What goal(s) are most dominant in the economy you know best? What laws, rules, norms, and institutions enforce the dominant goal?</p>

Maximizing the Value of the Owners' Claim on the Company Versus Maximizing the Value of the Company

In many circumstances, making the owners as rich as possible is the same thing as making the company as valuable as possible. For a firm with no debt (i.e., where owners have provided all the funding), the two goals are exactly identical. When firms are partly financed with borrowed funds, it is possible for the interests of the shareholders and debt providers to diverge. In such cases, making the firm as valuable as possible may not coincide with making the owners as rich as possible.⁹ However, most such situations have to do with heavily indebted, perhaps even bankrupt firms. For most of our purposes, we will assume that firm value maximization and shareholder value maximization are compatible.

Concept Question: Of what relevance to not-for-profit organizations does the idea of value maximization have? This is an important question, given that the tools of finance have a value-orientation.

Evidence

Whatever the philosophical issues with value maximization, there is strong interest in the answer to the question: *How much value do firms produce*. Figure 6 provides one read on this. As with the charts presented earlier in this note, this figure summarizes the experience of non-financial US public companies. For ease of comparison across years, the figure presents its measures of value created as proportions—this means that they show the value created per dollar invested by some group of investors.

[Insert Figure 6 about here.]

The first measure of value creation focuses on the firm overall, and all its suppliers of capital. This one is called the **Return on invested capital**, or **ROIC**. In general, ROIC is defined as after-tax cash operating income before depreciation divided by the total amount that has been invested by the firms capital providers (called **net assets or invested capital**).¹⁰ Roughly speaking, this means: as a proportion of the asset the firm owns, how much money did it earn?

The second measure is called the **Return on Equity**, or **ROE**. ROE is calculated by dividing the income that is available to shareholders after paying all other claims by a measure of the total amount invested by shareholders. Roughly speaking, this means: As a proportion of the amount shareholders have invested, how much did the firm earn for the shareholders. “For the shareholders” means after interest and other non-dividend disbursements have been paid out.

Except around the recession in the early 1990s, ROE has generally been around 14 percent. ROIC has generally been lower—about 12 percent in the 1980s and around 9 percent more recently. The recent lower outcomes on ROIC may be due to the huge investments in information and communications infrastructure recently undertaken in many major industries. By increasing invested capital, these investments reduce ROIC in the short run. Presumably, the benefits will become apparent over a longer period.

ROE is generally larger than ROIC because of **financial leverage**—debt. Firms borrow money to invest in their operations, and earn a positive margin over the cost of borrowing. This benefit flows through to the shareholders. In recessions, the benefit is negative: firms' earning are poor but the obligation to pay interest on debt continues. The effect of leverage is a topic we will investigate in more detail later in the semester.

Risk and the Opportunity Cost of Invested Capital

The above graphical impressions of return on invested capital (ROIC) and return on equity (ROE) in the previous section measure the value per dollar invested that has been generated for all capital suppliers (in the case of ROIC) and for suppliers of equity funds only (in the case of ROE). These are gross measures of the value created, rather than net (or bottom-line) measures. ROIC and ROE measure value created per dollar invested after all out-of-pocket (cash) costs have been paid. However, there is an additional crucial cost: the opportunity cost of investors' funds.

Opportunity cost refers to the benefits foregone by actions not taken. When an investor buys a company's stock or makes a loan to the company, she foregoes the opportunity to invest elsewhere. Suppose a company earns an ROIC of 10 percent for investors who could have put their money to work elsewhere, taken similar risks, and earned 11 percent on the alternative investment. This is the best foregone opportunity available. The company has not really created value for those investors—on net, it has cost them 1 percent of each dollar they invested. The gross benefit is 10 percent, the opportunity cost of the opportunity foregone is 11 percent, and the net benefit is -1 percent of each dollar invested. This net benefit per dollar invested defines the **ROIC Margin**. For the case of an equity investor, the **ROE Margin** could be analogously defined.¹¹

How do investors evaluate such opportunity costs? By developing benchmarks that let them evaluate the opportunity cost of a specific investment by comparison to the benchmark. The comparison is made along two dimensions: timing and risk. The opportunity cost of a dollar invested is the foregone gain that could have been had by investing in some other similarly risky scheme that provides a similarly-timed stream of cash. Much of our effort in this course will be devoted to developing appropriate benchmarks. These benchmarks go by names such as the **weighted-average cost of capital (WACC)** and the **cost of equity capital**.

Concept Question: Suppose you are considering investing in a 90 day certificate of deposit (CD) which pays 6 percent interest and matures in one year. Your bank tells you the CD is covered by US federal deposit insurance. Which of the following might be an appropriate benchmark to evaluate the opportunity cost?

- The return available to an investor who holds the bank's stock for one year?
- The return available to an investor in US Treasury debt securities that mature in one year?
- The return available to investors in the US Treasury debt that matures in 10 years?

Why?

Figure 7 displays the aggregate ROIC Margin and the ROE Margin for US public companies.¹² Rather, focus on the idea that these are net measures of value creation (per dollar invested) for all investors and for equity investors, respectively. Note that these net measures of *ROIC* and *ROE* are much less than the gross measures displayed in the previous chart. The cost of capital is substantial.

[Insert Figure 7 about here.]

In general, the ROE Margin appears to be around 2 to 4 percent of the capital invested by shareholders. The ROIC Margin is somewhat less, generally from 0 to 2 percent of invested capital. This might not seem like much. But the capital base to which these rates of value creation are applied is truly huge. For example, in 1998, shareholders investments in firms in the sample came to \$2,774,671 million—almost 3 trillion dollars. Reading off the chart, ROE in 1998 appears to be about 3 percent (0.03). This implies

that the dollar amount of value created for shareholders—or **Equity Value Added**— is $0.03 \times \$2,774,671 \text{ million} = \$83,240 \text{ million}$. That's \$83 thousand million (or \$83 billion, if you grew up speaking US English)—in only one year.

Intellectual Framework of Financial Management

Financial management concerns the most central finance tools, skills, and thinking that are needed by financial and non-financial managers alike. So far, this note has provided a conceptual overview and an outcomes summary of financial management, organized around firms' major decision areas (investing, operating, financing, value-disbursement).

The investment/operating decision is tightly tied to the skill called “valuation,” for once values are known then the decision is straightforward. To do valuation, we will need to learn how to value real and financial assets. Since values are ultimately determined in the capital markets, we will need to develop an understanding of how those markets work. Basically, there are three steps to dealing with valuation problems and investing decisions. The steps are: 1) Identify the project's cash benefits along with their timing and riskiness; 2) Identify the project's cash costs along with their timing and riskiness; 3) Determine whether the benefits outweigh the costs, giving due consideration to timing and risks.

In order to decide whether investment costs today are worth the future benefits expected, we need tools that allow us to make comparisons over time. The basic notion is the one of **opportunity costs** discussed earlier. A dollar received five years from now is worth less than one received today. How much is it worth? It is worth as much as people in the marketplace for financial claims on future payments are willing to pay, today, for a claim on cash five years from now. The difference between the present and future values of the payment defines the market's **discount rate**, also known as its **opportunity cost of funds** (or, equivalently, **opportunity cost of capital**). There will be much more on all of this later in the course.

[Up to this point, this note has discussed finance in a structured model of decisions and outcomes. The point is to provide the student with an organizing structure for the major decisions of finance, and also some knowledge of the real-world outcomes on those major decisions. When time allows, we have occasionally used an alternative approach to characterizing finance: focusing on one firm's story to give students a “feel” for what finance is all about. The presentation is essentially oral, for we like to discuss the issues. One well-developed example is the long history of Castrol, a British company that was originally known as Burmah Oil [see Perry, 1991]. Other instructors may wish to use another firm to illustrate the issues discussed in the teaching note.]

CONCLUSION

This teaching note strives to provide a structured and empirical way of introducing financial management in the first week of the core MBA class. Little has been written about the teaching approach for the first core MBA finance class. This article strives to fill this gap in the finance education literature, by presenting an insightful teaching note that other instructors can utilize.

This note provides a very high-level, general overview of financial management and carries forth the philosophy presented in Fama and French [1999]. You might say it's a view from the 30,000 feet level. This sort of big-picture approach is appropriate for getting started in the MBA class and leaves students with an organized vision of the practice of financial management that is both rigorous and practical. This note begins by defining finance and managerial finance and then provides some examples of the kinds of

issues that concern managers who desire to increase firm value. We accomplish this by providing a framework for financial management and characterizing economy-wide outcomes within this framework. Furthermore, this note emphasizes that the approach and the tools of finance are crucial not only to investors and financial managers, but to all managers who care about value creation.

Although we have written the teaching note for a stand-alone core MBA Finance course, it provides additional opportunities that could be exploited in an MBA Program where core courses are cross-functionally integrated. These linkages are possible because the teaching note presents Finance as spanning the milieu of all the firm's decisions and outcomes. For example, the discussion of the goal of the firm could be used to link to a Strategy discussion of customer value added. The discussion of corporate investing decisions could be used to link to an Economics discussion of industrial structure. The discussion of asset turnover could be used to link to a discussion of marketing strategies. Many other links are also possible, depending on the topics from other disciplines being covered.

At the end of the first week after covering the note, we tell students that next they must learn to use the tools of finance, and to do this, they have to get close-up and hands-on. Because the decisions of financial management are crucial to firms' health, the tools for making proper decisions are also crucial. In the remainder of the course, we zoom in much closer.

Endnotes

¹ Remember, the philosophy of value-maximization is something to be discussed below. Before going deeper, we are laying out the basic structure of financial management.

² Internal financing is often referred to as financing out of retained earnings. While this is not really accurate, for retained earnings are an accounting construct rather than a source of cash, the implied concept is roughly appropriate: the firm is financing out of its past successes.

³ This chart is constructed using data on (very roughly) 3000 firms each year from the Compustat database.

⁴ Figures are being developed for each of these measures by industry sector (at the two-digit SIC level) and will be made available on the web for others to use.

⁵ When discussing debt, “long-term” often means “with a maturity of more than one year.”

⁶ Beginning in the mid-1980s, manufacturing and service firms were required to report any (generally highly-indebted) finance subsidiaries on a consolidated basis with their other business. Previously, they had been able to report these results separately. Because the figure excludes stand-alone finance businesses, this accounting change results in higher reported debt levels for the firms reported here.

⁷ We tell the students at the introductory stage of the course they do not need to worry about precise definitions of terms like “net assets”, and to just think of assets in its generic sense as the things the firm owns. If the student is reviewing this note later in the semester, we would expect that they have learned about the more specific definitions of “net assets” and other financial accounting terms.

⁸ The proportions do not add up to 1 because investment and financing also come from or add to the firm’s cash flows. “Operations” here is used in its broadest sense—including both ordinary and extraordinary items, as well as continuing and discontinued operations.

⁹ To get a sense for the kinds of situations where owners’ interests might diverge from value maximization, imagine that you own a house in a depressed area. The house is worth much less now than when you bought it. You owe a substantial amount on a mortgage loan—so much that you have decided to stop paying, knowing that the lender will eventually take over the property. Before you miss a payment, a storm causes substantial damage to the house’s roof. From a value-maximization point of view, you should clearly repair the roof—the weather will cause even more damage if you do not. However, as owner, you might choose not to repair the roof, because you think the benefits will effectively go to the lender when it takes over the house. Note that heavy indebtedness and financial distress are central to this situation.

¹⁰ For this application, we have treated all the firm’s income (including extraordinary items and discontinued operations) as operating income, since everything counts when we think about the operations of the whole US economy. As we have stated repeatedly, the student should not worry about precise definitions at the opening stage of the semester. If they are reviewing this later, they should have seen all the various financial accounting terms often enough to know their definitions.

¹¹ These quantities are frequently calculated in practice, but do not have standard names. ROIC Margin and ROE Margin will be used in this note.

¹² By the end of the semester, the student’s skills will include the means to accomplish cost of capital calculations. For the time being, the calculations are not the point. Therefore, and because they are a bit complex, they are not discussed at this point. Moreover, the cost of capital is difficult to calculate precisely. These numbers should therefore be regarded as rough estimates—perhaps plus or minus 1 percent.

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Table 1
Outline of Topics and Time Spent Discussing the Teaching Note

This table outlines the breakdown of topics and time spent covering each topic in the teaching note.

Topic	Time Devoted to Topic
What is Financial Management?	30 minutes
Definition	(10 minutes)
Description of Major Decision Areas (Figure 1)	(20 minutes)
What Decisions Do Firms Make? The Big Pictures(s)	60 minutes
Investment and Financing Decisions (Figures 2 & 3)	(30 minutes)*
Investment and Operating Outcomes (Figure 4)	(20 minutes)
Value Disbursement Decisions (Figure 5)	(10 minutes)
The Really Big Picture: Value Creation for Owners	30 minutes
Owner Value Maximization as the Goal of the Firm	(10 minutes)
Owner Value Maximization versus Firm Value Maximization	(10 minutes)
Evidence on Value Creation (Figure 6)	(10 minutes)
Risk and Opportunity Cost of Capital	30 minutes
Conceptual Discussion of Opportunity Cost of Capital	(20 minutes)
Evidence on Value Creation Net of Capital Costs (Figure 7)	(10 minutes)
Conclusion: Intellectual Framework for Financial Management	10 minutes
Total	150 minutes

* This subtopic requires extra time to orient students to the structure of the Figure, which is the same for all subsequent Figures.

Table 2
What is Finance?

Finance: Techniques & Markets for Managing & Understanding the creation of Value for Owners in Risky Environments, especially via Contracting.

Techniques: One (incomplete) way to think of finance is as a collection of tools for analysis. Much of what we do in this class is oriented to enhancing your analytical skill. Finance can also be thought of in terms of a set of tools for financing, that is, raising the funds necessary to operate an enterprise.

Markets: Markets and market prices, especially for stocks and other securities, are the touchstone of finance. Well-functioning financial markets are the best source of information, benchmarking, and insights into value. That's because value is, by definition, what people say it is. And financial markets are the places where people meet to convincingly say what value is—they say it with their pocketbooks.

Managing & Understanding: Finance goes beyond analytical tools to be a managerial orientation. A recruiter for a major airline told me not long ago that he wanted new employees who had the value-creating orientation of finance hard-wired into their brains as a guiding philosophy. Finance is also an intellectual area in its own right, generating thoughts that have substantially changed the world economy. One bit of evidence: during the 1990s, the Nobel Prize in economics was awarded to four finance professionals.

Value: Finance focuses on measurable value. While not all value is cash, a basic tenet of finance is that all value can be expressed in terms of cash (i.e., purchasing power). Think: How much would I pay for that?

Owners: For reasons discussed later in this note, finance thinks of an enterprise's owners (such as its stock market investors) as the central stakeholders in whose interest the enterprise is operated. This is a strong philosophical statement, for it puts owners in front of employees, customers, community, etc. This will bear some exploration. That said, the tools and thinking of finance are also of substantial importance for organizations with goals other than owner value maximization, such as not-for-profit agencies.

Risk: Finance contrasts with economics more generally partly by its emphasis on risky situations, and on the way in which stock market investors evaluate risks.

Contracting: Finance focuses on the incentive-laden relationships between owners, other funding suppliers, managers and employees, and on the way that these relationships can be molded in value-creating ways via contracts. Securities, such as stocks and bonds, are the central contract with which finance is concerned.

Figure 1
Financial Management Decision Areas

The figure shows the basic question inherent in each decision area of financial management, and emphasizes that the goal of the decision is value-maximization.

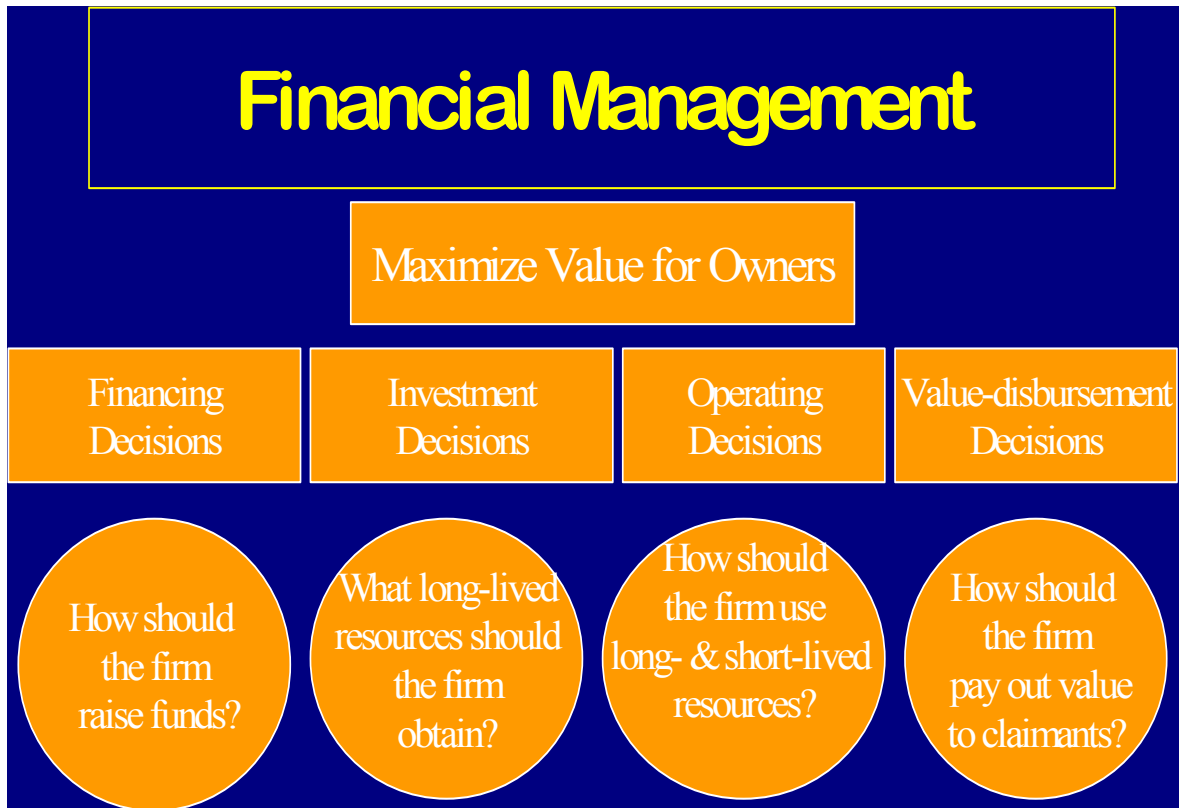


Figure 2

This figure shows aggregate investment and financing decisions by approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained on all nonfinancial public US companies from the Compustat database. The definition of investment, recent cash earnings, new debt and new sales of equity follow that of Fama and French [1999]. Investment = Change in long-term debt + Change in short term debt + Change in book equity + Depreciation. “Change” refers to the year-over-year firm-specific change, aggregated across all firms. Firms missing the previous year’s data are eliminated from all calculations for a given year. Recent cash earnings (retained) = Income before extraordinary items + Extraordinary items + Depreciation + Income statement deferred taxes. New sales of equity = Investment – Recent cash earnings – Change in long term debt – Change in short term debt. Refer to Appendix 1 for more details on the ratios used.

Investment and its sources, as a proportion of Invested Capital

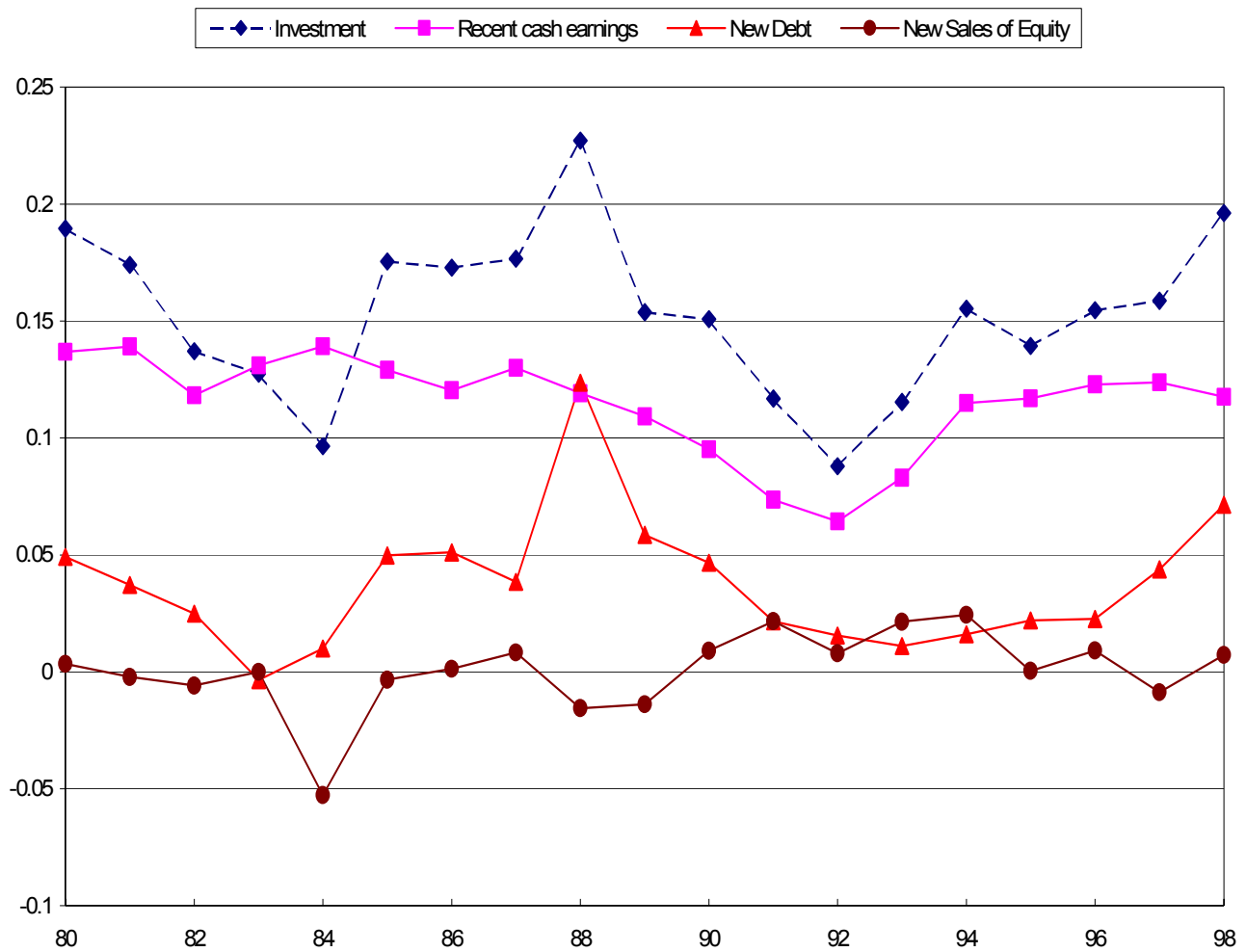


Figure 3

This figure shows capital structure as a proportion of invested capital for approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained for all nonfinancial public US companies from the Compustat database. Refer to Appendix 1 for more details on the ratios used.

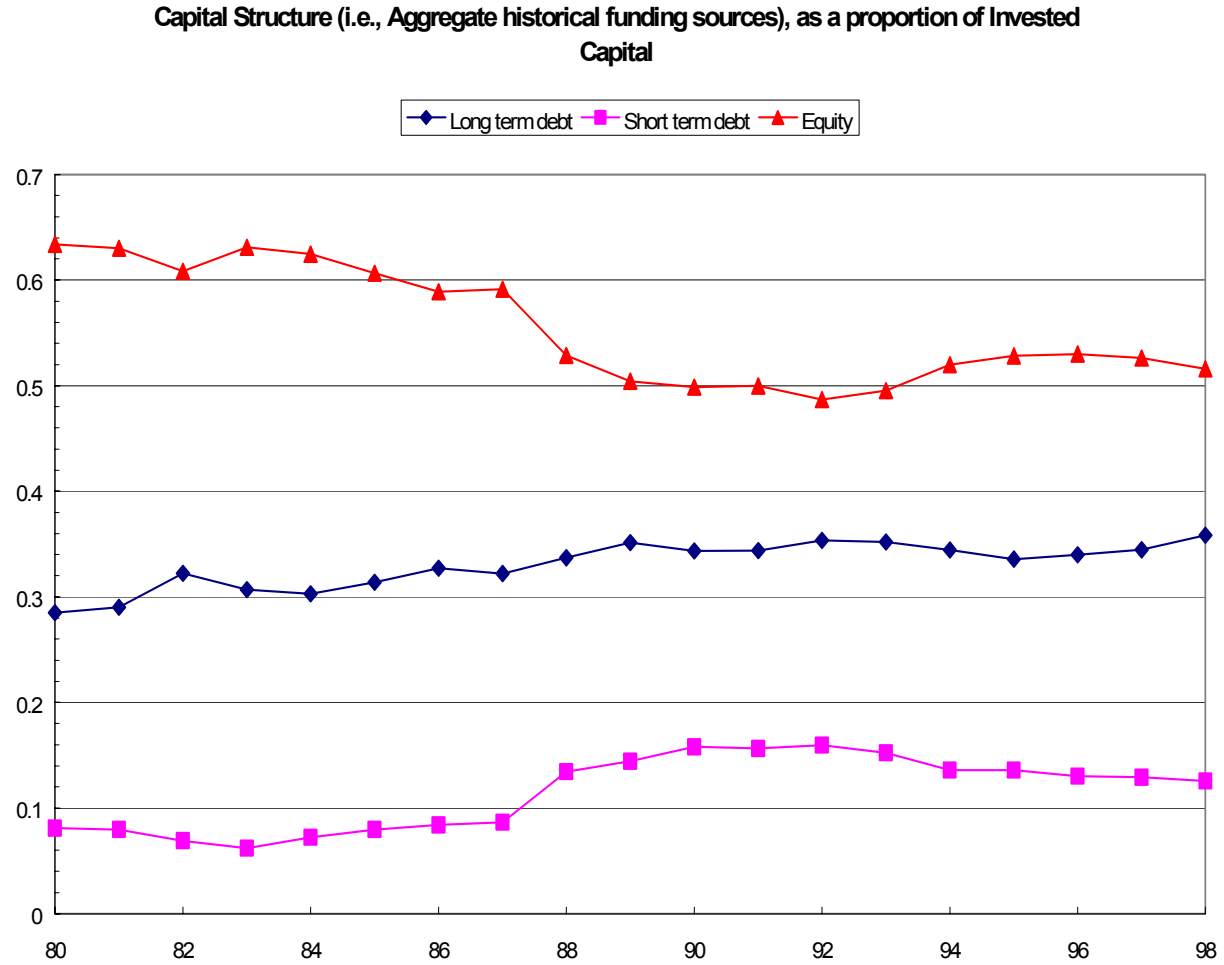


Figure 4

This figure illustrates investing and operating outcomes as a proportion of invested capital for approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained for all nonfinancial public US companies from the Compustat database. Refer to Appendix 1 for definitions of the ratios used. Sales relative to net assets = Sales/Net Assets. Operating cashflow, after tax, relative to sales = Operating cash flow after tax/Sales. Refer to the Appendix for more details on the ratios used.

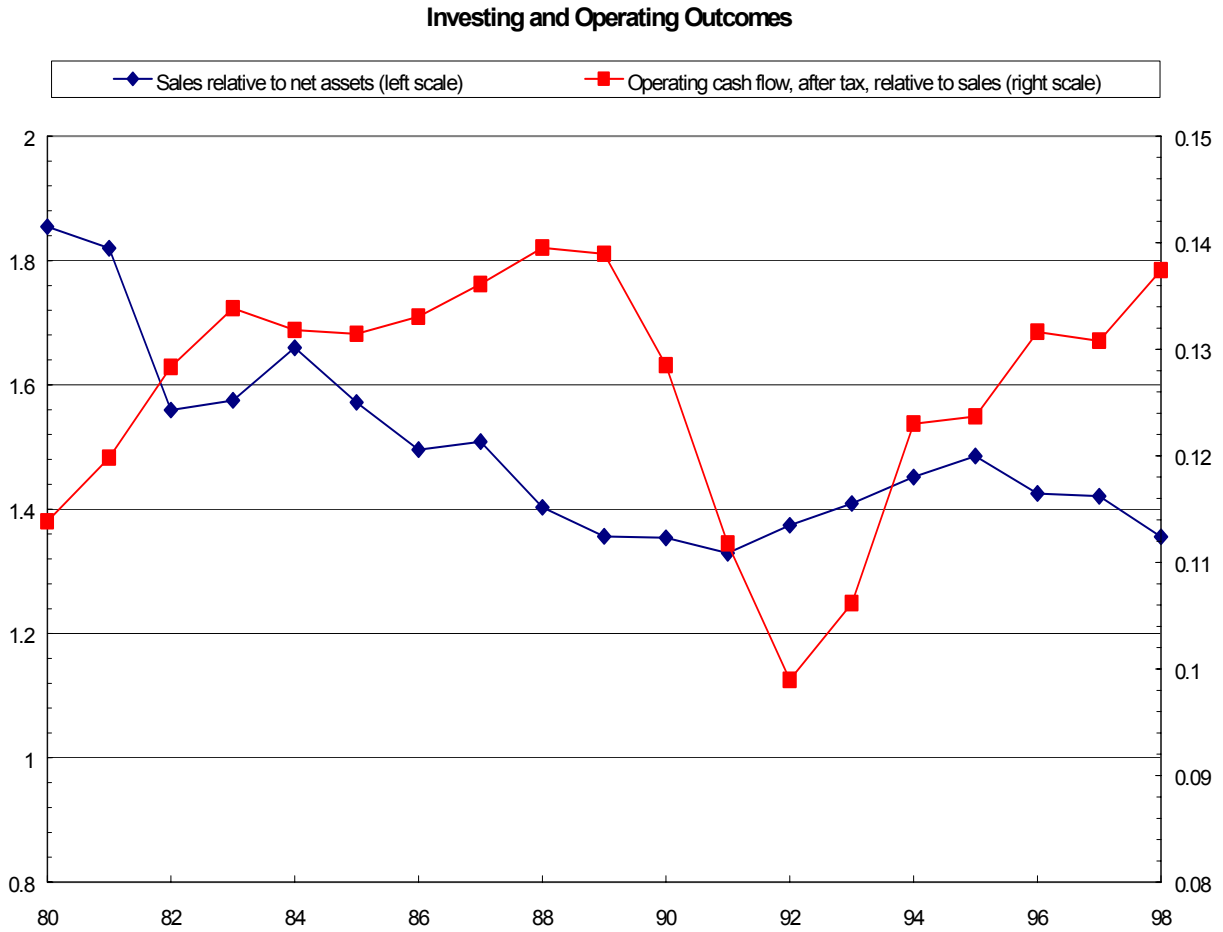


Figure 5

This figure illustrates disbursements (dividends, interest, and taxes) as a proportion of cash flow from operations, prior to taxes for approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained for all nonfinancial public US companies from the Compustat database. Dividends are common dividends, interest is interest expense, and taxes = income tax expense + income statement deferred taxes. Refer to Appendix 1 for more details on the ratios used.

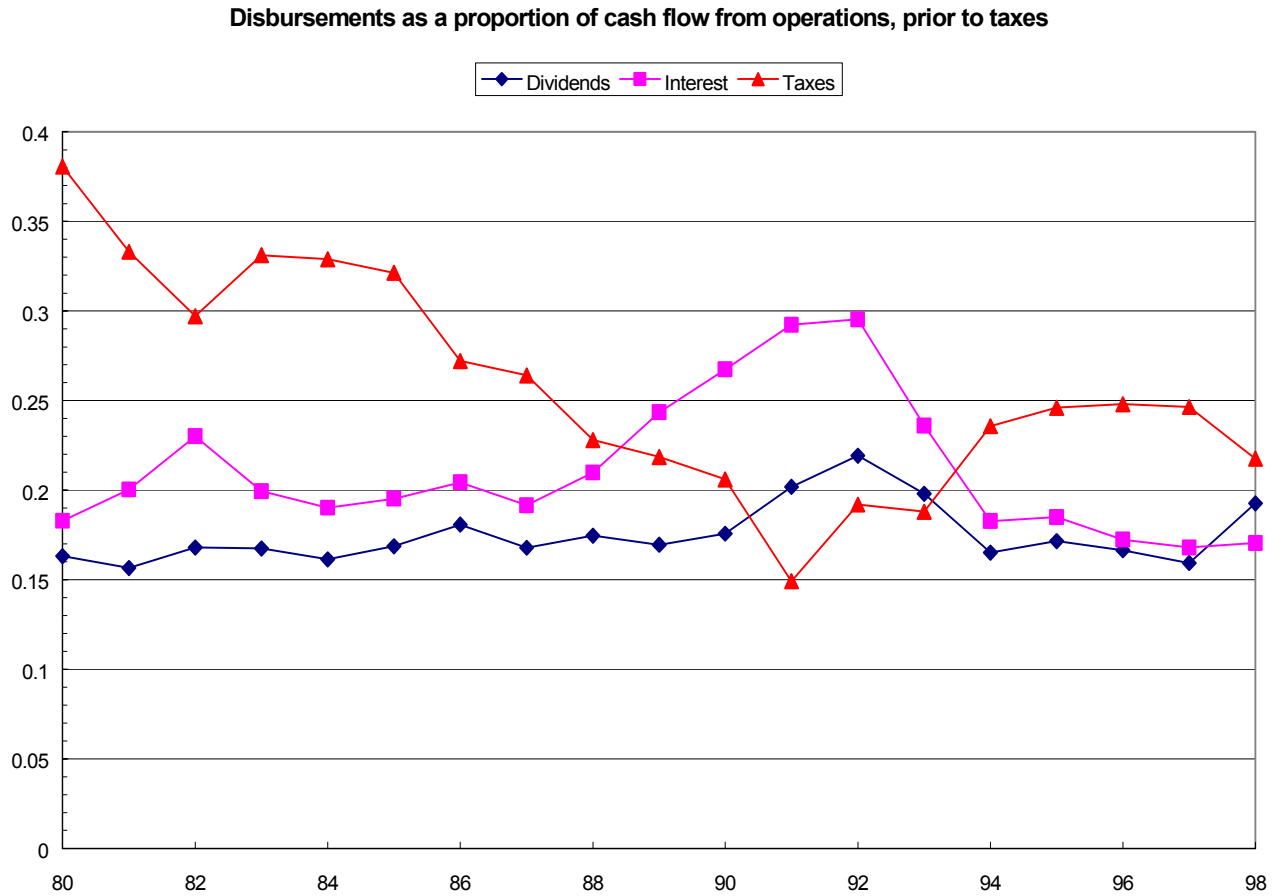


Figure 6

This figure illustrates value creation relative to the total of all past investments for approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained for all nonfinancial public US companies from the Compustat database. Return on Equity (ROE) = (Operating cash flow after tax – Interest)/Book Equity. Return on invested capital (ROIC) = operating cash flow after tax/invested capital. Invested capital = Book equity + Long term debt + Short term debt. Refer to Appendix 1 for more details on the ratios used.

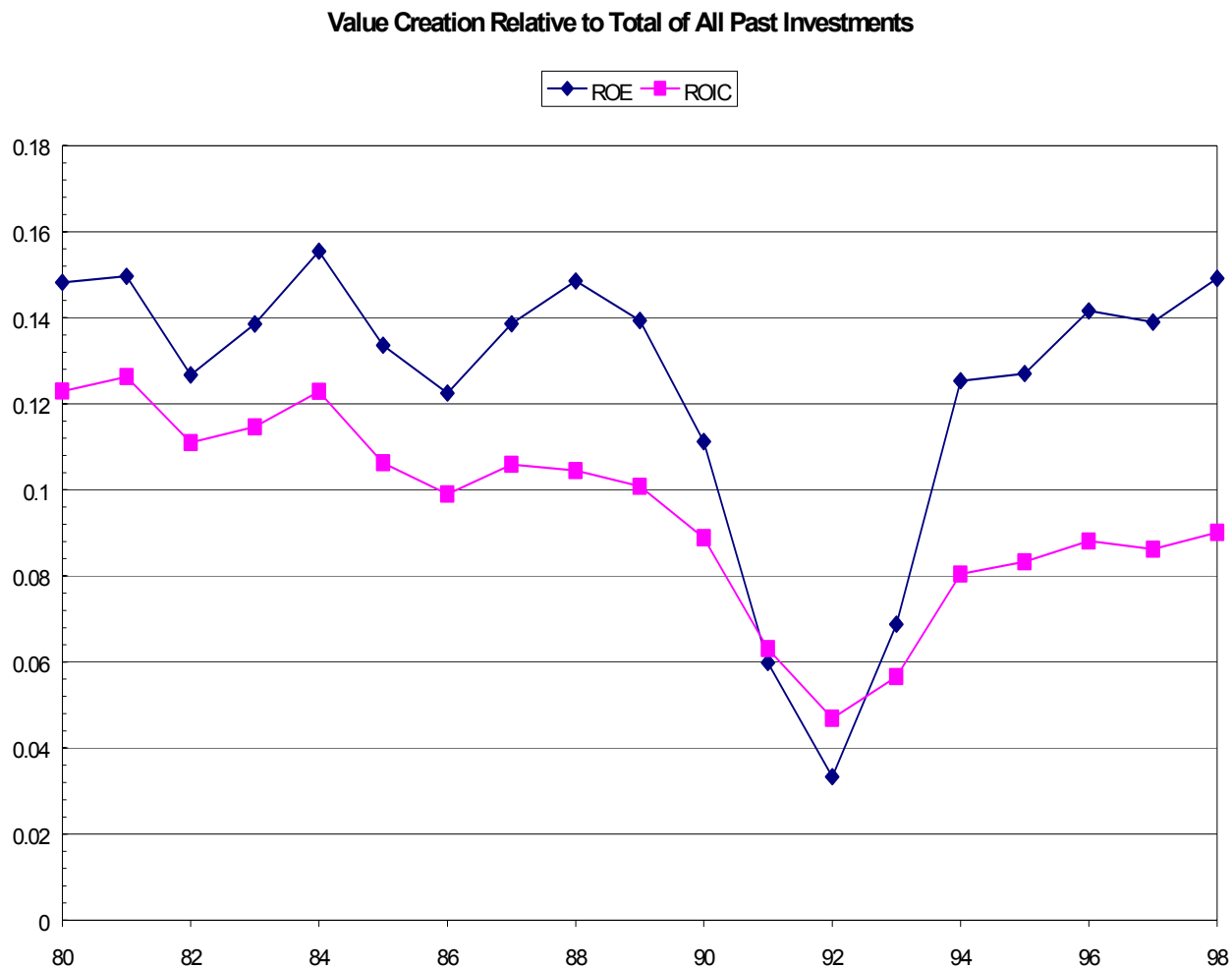
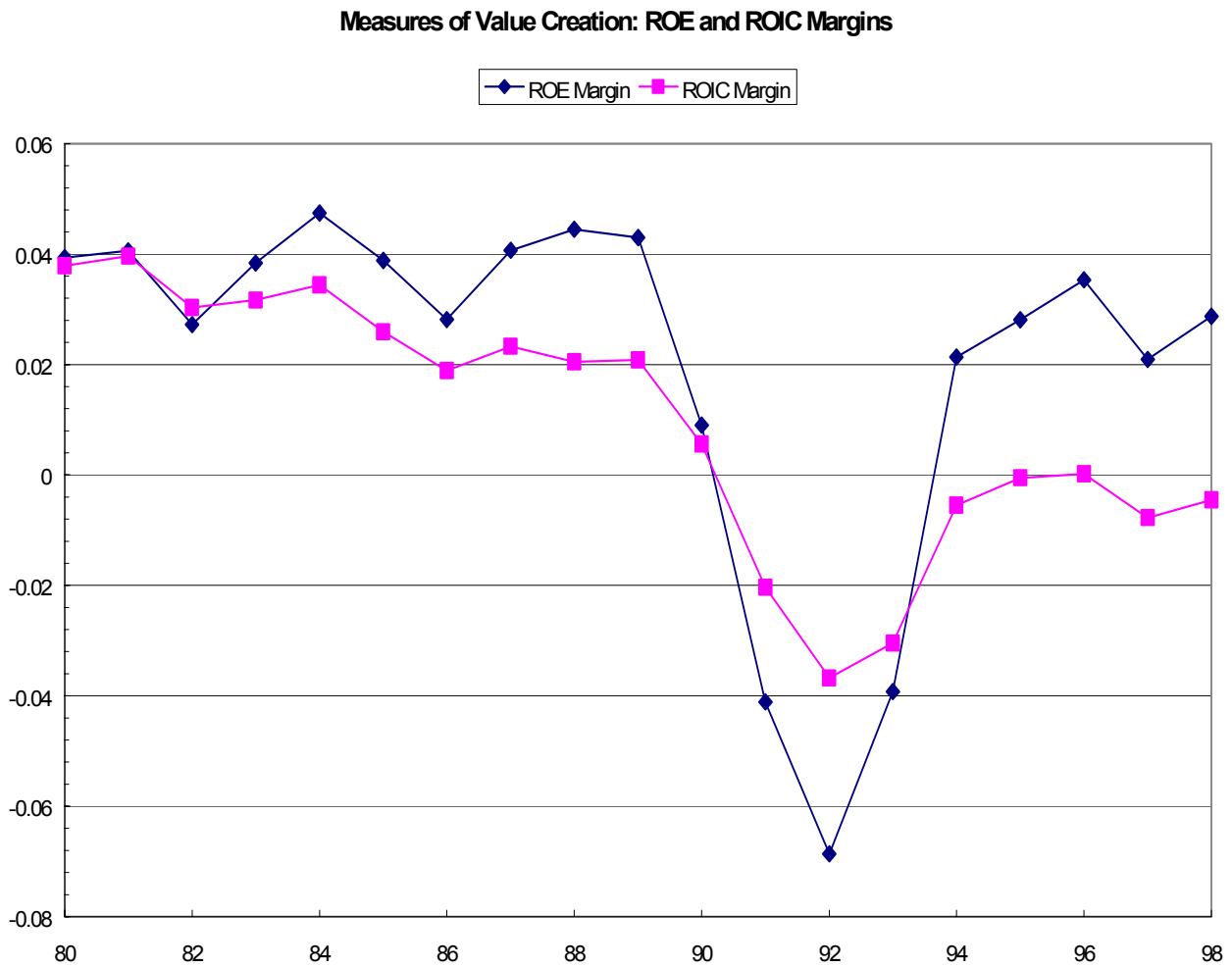


Figure 7

This figure illustrates measures of value creation (ROE Margin and ROIC Margin) for approximately 3000 nonfinancial US corporations over 1980-98. Data is obtained for all nonfinancial public US companies from the Compustat database. Return on Equity Margin (ROE Margin) = ROE – Average Return on US stocks over the past 30 years, per Ibbotson & Associates. Return on Invested Capital Margin (ROIC Margin) = ROIC – WACC, where WACC is the weighted average of the average return on Treasury bills and the average return on stocks over the past 30 years, per Ibbotson and Associates. The weighting depends on the economy's leverage ratio (i.e., (Long term debt + short term debt) ÷ Invested Capital). Refer to Appendix 1 for more details on the ratios used.



Appendix **Definitions of Terms Used in Figures.**

Items are defined in terms of Compstat item numbers only the first time they appear.

Invested capital = Book equity + Long term debt + Short term debt.

Book equity = Item 6 – Item 181 + Item 35.

Long term debt = Item 9.

Short term debt = Item 34, if available; else Item 5.

Investment =

Change in long-term debt + Change in short term debt + Change in book equity + Depreciation.
“Change” refers to the year-over-year firm-specific change, aggregated across all firms. Firm’s missing the previous year’s data are eliminated from all calculations for a given year.

Depreciation = Item 14.

Recent cash earnings (retained) =

Income before extraordinary items + Extraordinary items + Depreciation + Income statement deferred taxes – Common dividends – Preferred dividends.

Income before extraordinary items = Item 18.

Extraordinary items = Item 48.

Depreciation = Item 14.

Income statement deferred taxes = Item 50.

Common dividends = Item 21.

Preferred dividends = Item 19.

Note that Change in book equity, defined above, is also equal to Recent cash earnings (retained) plus new sales of equity.

New sales of equity =

Investment – Recent cash earnings – Change in long term debt – Change in short term debt.

Note that new sales of equity is also equal to Change in book equity less Recent cash earnings.

Sales = Item 12.

Net Assets = Invested capital.

Note that Invested capital as also equal to Total Assets – Debt in short-term liabilities.

Sales relative to Net assets = Sales ÷ Net Assets.

Operating cash flow, after tax =

Income before extraordinary items + Extraordinary items + Depreciation + Interest expense +
Income statement deferred taxes

Item 15 = Interest expense.

Operating cash flow, after tax, relative to Sales = Operating cash flow, after tax ÷ Sales.

Dividends in Figure 5 = Common Dividends

Interest in Figure 5 = Interest expense

Taxes in Figure 5 = Income tax expense + Income statement deferred taxes

Return on Equity (ROE) = (Operating cash flow, after tax – Interest) ÷ Book Equity.

Return on Invested Capital (ROIC) = Operating cash flow, after tax ÷ Invested Capital.

ROE Margin = ROE - Average Return on US stocks over the past 30 years, per Ibbotson & Associates.

ROIC Margin = ROIC – WACC, where WACC is the weighted average of the average return on Treasury bills and the average return on stocks over the past 30 years, per Ibbotson and Associates. The weighting depends on the economy's leverage ratio (i.e., (Long term debt + short term debt) ÷ Invested Capital).