financial accounting theory

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Chapter 4

Efficient Securities Markets

Figure 4.1 Organization of Chapter 4

4.1 OVERVIEW

In this chapter, we consider the interaction of rational investors in a securities market. The theory of efficient securities markets predicts that the security prices that result from this interaction have some appealing properties. In essence, these prices "fully reflect" the collective knowledge and information-processing expertise of investors. The process by which prices do this is quite complex and not fully understood. Nevertheless, the general outlines of the process are easy to see, and we shall concentrate on these.

Securities market efficiency has important implications for financial accounting. One implication is that it leads directly to the concept of *full disclosure*. Efficiency implies that it ~~is the information content of disclosure, not the form of disclosure itself, that is valued by the market.~~ If so, information can be released as easily in notes and supplementary disclosures as in the financial statements proper. The theory also affects how the accountant should think about reporting on firm risk.

In efficient markets theory, ~~accounting is viewed as being in competition with other information sources~~ such as news media, financial analysts, and even market price itself. ~~As a vehicle for informing investors, accounting will survive only if it is relevant, reliable, timely, and cost effective, relative to other sources.~~

Efficient securities market theory also alerts us to what is the primary reason for the existence of accounting, namely information asymmetry. When some market participants know more than others, pressure arises to find mechanisms whereby the better informed, who wish to do so, can credibly communicate their information to others, and whereby those with information disadvantage can protect themselves from possible exploitation by ~~the better informed. Insider trading is an example of such exploitation.~~

~~We can then think of accounting as a mechanism to enable communication of useful information from inside the firm to outside.~~ In addition to enabling better investor decisions, this has ~~social benefits~~ through improving the working of securities markets.

As mentioned in Section 1.2, accounting theorists began to realize the importance of securities market efficiency in the late 1960s. Since that time, the theory has guided much accounting research and has had major implications for accounting practice. By and large, financial accounting standard-setting bodies and regulators have accepted the full disclosure and decision usefulness implications of securities market efficiency. To illustrate this, we will examine management discussion and analysis (MD&A), an important disclosure standard, from an informational perspective.

While, in this chapter, we outline the properties of a fully efficient securities market and their implications for accountants, it should be emphasized that efficiency is a *model* of how a securities market operates. Like any model, it does not capture the full complexity of such a market. Indeed, recent years have seen an increasing number of questions about whether investors are as rational as the model assumes, and increasing evidence questioning market efficiency.

These questions are examined in Chapter 6, where we conclude that while actual securities markets are not fully efficient, they are close enough that accountants can be guided by efficiency implications and the rational decision theory underlying them. We also conclude that to the extent securities markets are not fully efficient, this further increases the importance of financial reporting.

Figure 4.1 outlines the organization of this chapter.

4.2 EFFICIENT SECURITIES MARKETS

4.2.1 The Meaning of Efficiency

In Chapter 3 we studied the optimal investment decisions of rational investors. Now consider what happens when a large number of rational individuals interact in a securities market. Our interest is in the characteristics of the market prices of securities traded in the market, and how these prices are affected by new information.

If information was free, it is apparent that investors would want to take advantage of it. For instance, under the ideal conditions of Example 2.2, investors would want to know

which state of nature was realized, since this affects the future share price and dividends of the firm. By assumption, information is free under ideal conditions since state realization is publicly observable. Thus, all investors would use this information, and the process of arbitrage ensures that the market value of the firm then adjusts to reflect the revised cash flow expectations that result, as illustrated in Example 2.2.

Unfortunately, information is not free under non-ideal conditions. Investors have to decide how much accounting expertise and information to acquire, and then to form their own subjective estimates of firms' future performance. Furthermore, these estimates will need revision as new information comes along. Each investor then faces a cost–benefit tradeoff with respect to how much information to gather. There is a variety of relevant information sources—the financial press, tips from friends and associates, changes in economic conditions, advice from analysts and brokers, etc. We can think of rational investors as continuously revising their subjective state probabilities as such information is received. From our standpoint, of course, a major source of cost-effective information is firms' quarterly and annual reports. Probability revision arising from financial statement information was illustrated in Example 3.1.

At least some investors spend considerable time and money to use these information sources to guide their investment decisions. Such expert investors are called **informed**. Bill Cautious, in Example 3.1, is an example of such an investor.

It should be apparent that informed investors will want to move *quickly* upon receipt of new information. If they do not, other investors will get there first and the market value of the security in question will adjust so as to reduce or eliminate the benefit of the new information.

When a sufficient number of investors behave this way, the market becomes **efficient**. There are several definitions of an efficient securities market. The definition that we shall use here is the **semi-strong form**.

> *An **efficient securities market** is one where the prices of securities traded on that market at all times fully reflect all information that is publicly known about those securities.*

Three points are particularly noteworthy. First, market prices are efficient with respect to *publicly known* information. Thus, the definition does not rule out the possibility of inside information. Persons who possess inside information, in effect, know more than the market. If they wish to take advantage of their inside information, insiders may be able to earn excess profits on their investments at the expense of outsiders. This is because the market prices of these investments, reflecting only outside or publicly available information, do not incorporate the knowledge that insiders possess. Not every insider is "bad," of course. Some managers may seek ways to credibly communicate their inside information to the market, perhaps to bolster their firms' share price and their reputations. Nevertheless, investors will still be worried about the *possibility* of insider trading.

A second, related point is that market efficiency is a *relative* concept. The market is efficient relative to a stock of publicly available information. There is nothing in the definition to suggest that the market is omniscient and that market prices always reflect

real underlying firm value. Market prices can certainly be wrong in the presence of inside information, for example.

The definition of efficiency does imply, however, that once new or corrected information becomes publicly available, the market price will quickly adjust to it. This adjustment occurs because rational investors will scramble to revise their beliefs about future performance as soon as new information, from whatever source, becomes known. As a result, the expected returns and risk of their existing portfolios will change and they will enter the market to restore their optimal risk–return tradeoffs. The resulting buy-and-sell decisions will quickly change security prices to fully reflect the new information.

A third implication is that investing is fair game if the market is efficient. This means that investors cannot expect to earn excess returns on a security, or portfolio of securities, over and above the normal expected return on that security or portfolio, where the normal expected return allows for risk. One way to establish a normal return benchmark is by means of a capital asset pricing model, as will be illustrated in Section 4.5.

Finally, given market efficiency, a security's market price should fluctuate randomly over time. That is, there should be no serial correlation of share returns. Thus, if a firm reports GN today, its share price should rise to reflect this news the same day. If, in the absence of any further news, its price continues to rise during succeeding days, this is evidence of inefficiency. The reason why price fluctuations are random is that anything about a firm that can be *expected*, such as the seasonal nature of its business, the retirement of its chief executive, or the expected profit on a major new contract, will be fully reflected in its security price by the efficient market as soon as the expectation is formed. That is, the market's expectation of the effect of such events on the value of the firm is on average *unbiased*. The only reason that prices will change is if some relevant but *unexpected* information comes along. By definition, unexpected events occur randomly. For example, an accident may change the expected profit on a contract, and share price will quickly respond to reflect this random event. Thus, if we examine the time series formed by the sequence of price changes for a particular security, this series should fluctuate randomly over time according to market efficiency theory. A time series that exhibits such serially uncorrelated behaviour is sometimes called a **random walk**.[1]

4.2.2 How Do Market Prices Fully Reflect All Available Information?

We now consider *how* market prices fully reflect all available information. This process is by no means obvious. As described previously, rational, informed investors will demand information about securities. However, there is no guarantee that all individuals will react identically to the same information. For example, they may have different prior beliefs. Some may have superior expertise to analyze financial statement information. In a sense, the decision theory model is like an automobile. It provides a vehicle to process information, but nothing guarantees that everyone's driving habits are identical or that they all take the same route to a destination.

As a result, it is quite likely that different investors will react to the same information differently, even though they all proceed rationally. Yet, investors interact in a market, each making buy/sell decisions about various securities. Since the market price of a security is the result of the demand for and supply of the security by investors, how can the market price fully reflect all available information when the individuals making the demand and supply decisions are different?

An interesting insight into this question can be gained from an example in Beaver (1981, p. 162, Table 6-1). The example relates to forecasting the results of football games. The *Chicago Daily News*, during 1966–1968, printed weekly the predictions of each of its sports staff as to who would win that weekend's college football games. Table 4.1, taken from Beaver, summarizes the outcomes of these predictions.

Note the following points from Table 4.1. First, there were a number of different forecasters (15–16) and a large number of forecasts were made (619 over the three years). Second, no one individual forecaster dominated in terms of forecasting ability. The best forecasters in 1966 were well down the list in subsequent years, and vice versa. Third, note the consistent performance of the consensus forecast. The consensus forecast was also published weekly by the *Chicago Daily News* and, for each game, consisted of the team favoured to win by the majority of those forecasting. It is clear that the consensus forecast has a quality that transcends the forecasting ability of the individual forecasters from which the consensus is derived.

To translate the example into a securities market context, we can think of the forecasters as investors in a security and the forecasts as their various buy/sell decisions. The consensus forecast is analogous to the market price, since it is a type of average of the various individual forecasting decisions.

Table 4.1 Forecasting Outcomes of Football Games

	1966	1967	1968
Total forecasters (including consensus)	15	15	16
Total forecasts made per forecaster	180	220	219
Rank of consensus*	1 (tie)	2	2
Median rank of forecasters	8	8	8.5
Rank of best forecasters:			
J. Carmichael (1966)	1 (tie)	8	16
D. Nightingale (1966)	1 (tie)	11	5
A. Biondo (1967)	7	1	6
H. Duck (1968)	8	10	1

*When all three years are combined, the consensus outperforms every one of the forecasters (that is, ranks first).

Source: William H. Beaver, *Financial Reporting: An Accounting Revolution*® 1981, p. 162, Table 6-1. Reprinted by permission of Prentice-Hall Inc., Upper Saddle River, New Jersey. Data are from "Here's How Our Staff Picks 'Em," as published in the *Chicago Sun-Times*. Copyright 1966, 1967, 1968 by Chicago Sun-Times Inc. Reprinted with permission.

The rationale behind the example is not hard to see. It appears that the differences in forecasting ability of individual forecasters tend to cancel out when the consensus is formed, leaving a "market price" that outperforms the ability of any of the market participants.

Of course, just because a consensus forecast outperforms individual forecasters of football games does not by itself mean that the same phenomenon carries over to security prices. Essentially, what is required is that investors' estimates of security values must on average be unbiased. That is, the market does not systematically misinterpret the valuation implications of a stock of information, but rather puts a valuation on securities that is *on average* correct or unbiased. As mentioned, this does not mean that any individual investor will necessarily be correct, but it does mean that *on average* the market uses all available information. This is the meaning of the term "fully reflects" in the definition of securities market efficiency given earlier.

It should be emphasized that this argument assumes that individual decisions are independent, so that individual differences cancel out in their effect on price. If this is not the case, efficiency arguments break down.[2] Thus, if our football forecasters got together to work out and agree on a consensus forecast, their forecasts would not be independent if they reflected the views of, say, a dominant and persuasive member of the group. Similarly, if a sufficient number of investors display a collective bias in their reaction to new information about a firm, the resulting share price will be biased. For example, a firm may have reported a pattern of increasing earnings. If investors expect future earnings growth to continue simply because of growth in the past, share price momentum may develop. Then, share prices may be "too high," driven by past price increases rather than by rational evaluation of information by independent investors. We will return to this point in Chapter 6, where we discuss whether securities markets are fully efficient.

Theory in Practice **4.1**

Prof. Burton Malkiel, in his 1973 book *A Random Walk Down Wall Street*, argued that randomly throwing darts at a list of shares traded on the New York Stock Exchange would earn just as high a return as the returns earned by professional money managers. His argument drew on efficient markets theory, which predicts that, since share price always fully reflects all publicly available information, there are no "bargain" stocks. Then, professional money managers cannot do better than a strategy of random stock choice.

During the 1990s, *The Wall Street Journal* tested this argument. It sponsored a monthly series of contests, whereby four investment analysts each picked a favoured stock. The return on each stock over the next six months was tallied and compared with the return on a randomly chosen stock for the same period. For the first 100 contests, the pros earned an average six-months return of 10.9% while the darts earned a 4.5% return. The average six-months return of the Dow Jones index was 6.8%.

(continued)

Theory in Practice 4.1 *(continued)*

When asked to explain these results, Prof. Malkiel defended the efficiency theory, arguing that the results could be explained by risk differences. He also pointed out that stock market performance during the 1990s was driven by very large firms. But, since there are many more relatively small firms on the market than large firms, the probability that a randomly thrown dart would pick a small firm was quite high. Also, as investors learned of the stocks picked by the pros they would revise upwards their opinions of these stocks. The resulting increase in demand would raise their prices and returns relative to the randomly chosen stocks.

4.2.3 Summary

In an efficient securities market, prices fully reflect all available information, and the price changes on such a market will behave randomly over time. ~~Efficiency is defined relative to a stock of information. If this stock of information is incomplete, say due to inside information, or wrong, security prices will be wrong. Thus, market efficiency does not guarantee that security prices fully reflect real firm value. It does suggest, however, that prices are unbiased relative to publicly available information and will react quickly to new or revised information.~~

The quantity and quality of publicly available information will be enhanced by prompt and full reporting. However, individual investors may have different prior beliefs and/or may interpret the same information differently. Nevertheless, roughly speaking, we can think of these differences as averaging out, so that the market price has superior quality to the quality of the information processing of the individuals trading on the market. This argument assumes, however, that investors evaluate new information independently.

4.3 IMPLICATIONS OF EFFICIENT SECURITIES MARKETS FOR FINANCIAL REPORTING

4.3.1 Implications

An early examination of the reporting implications of efficient securities markets appeared in an article by W. H. Beaver, "What Should Be the FASB's Objectives?" (1973). Here, we will outline Beaver's arguments.

According to Beaver, ~~the first major implication is that accounting policies adopted by firms do not affect their security prices, as long as these policies have no differential cash flow effects, the particular policies used are disclosed, and sufficient information is given so that the reader can convert across different policies.~~ Thus, Beaver would regard accounting disputes such as a firm's choice of amortization method or the full-cost versus successful-efforts approach for oil and gas firms as, essentially, "tempests in a teapot." Notice that a firm's choice between different accounting policies in each of these disputes involves only "paper" effects. The policy chosen will affect reported net income, but will not directly affect future cash flows and dividends. For example, an oil and gas firm's proceeds from sale of crude and refined products will not depend directly on whether it uses full-cost or successful-efforts accounting. In particular, the amount of income tax the firm must pay will not be affected by its accounting policy choice in either of these areas since the tax department has its own way of calculating expenses and income in each area, independent of how the firm accounts for them on its books. If investors are interested in future cash flows and dividends and their impact on security returns, and if choosing between accounting policies does not directly influence these variables, the firm's choice between accounting policies should not matter.

Thus, ~~the efficient market argument is that as long as firms disclose their selected policy and any additional information needed to convert from one method to another, investors are able to make the necessary calculations to see through to the resulting differences in reported net income. The market can see through to the ultimate cash flow and dividend implications regardless of which accounting policy is actually used for reporting.~~ Thus, the efficient market is not "fooled" by differing accounting policies when comparing different firms' securities. ~~This suggests that management should not care about which particular accounting policies they use as long as those policies have no direct cash flow effects.~~

We thus see that full disclosure extends to disclosure of the firm's accounting policies. This is recognized by standard setters. For example, IAS 1 states that a complete set of financial statements includes disclosure of accounting policies. Also, the *CICA Handbook*, paragraph 1505.04, currently states:

> *A clear and concise description of the significant accounting policies of an enterprise should be included as an integral part of the financial statements.*

A ~~second implication~~ follows—namely, efficient securities markets go hand in hand with full disclosure. If a firm's management possesses relevant information about the firm and if this can be disclosed at little or no cost, management ~~should~~ then disclose this information on a timely basis unless it is certain that the information is already known to investors from other sources. More generally, management should develop and report information about the firm as long as the benefits to investors exceed the costs. The reasons are twofold. First, market efficiency implies that investors will use all available information about the firm as they strive to improve their predictions of future returns, so that additional information will not be wasted. Second, the more information a firm discloses about itself, the greater is investors' confidence in the working of the securities market, since there is less inside information to worry about.

~~Third,~~ market efficiency implies that firms should not be overly concerned about the ~~naïve investor~~ – that is, financial statement information need not be presented in a manner so simple that everyone can understand it. The reasoning, from Fama (1970), is that if *enough* investors understand the disclosed information, the market price of a firm's shares is the same as it would be if all investors understood it. This is because informed

investors will engage in buy/sell decisions on the basis of the disclosed information, moving the market price towards its efficient level. Also, naïve investors can hire their own experts, such as financial analysts or investment fund managers, to interpret the information for them, or can mimic the buy/sell decisions of informed investors. As a result, any information advantage that informed investors have is quickly dissipated. In other words, naïve investors can *trust* the efficient market to price securities so that they always reflect all that is publicly known about the firms that have issued them, even though these investors may not have complete knowledge and understanding themselves. This is referred to as investors being **price-protected** by the efficient market.

Since Beaver's paper, accountants have recognized that there is a variety of reasons for trading securities. For example, some investors may make a rational decision to rely on market price as a good indicator of future payoffs, rather than incur the costs of becoming informed. Others may trade for a variety of non-portfolio reasons—perhaps an unexpected need for cash has arisen. Consequently, "naïve" may not be the best word to describe uninformed investors. This is considered further in Section 4.4.

A final implication is that accountants are in competition with other providers of information, such as websites and other media, disclosures by management, and various financial institutions. That is, belief revision is a continuous process, as pointed out in Section 3.3.3. Thus, if accountants do not provide useful, cost-effective information, the role of the accounting function will decline over time as other information sources take over—accountants have no *inherent* right to survive in the competitive marketplace for information. However, survival will be more likely if accountants recognize that the ultimate responsibility of their profession is to society. This longer-run point of view is encouraged by standards that promote useful information, by penalties for individuals who abuse public trust for short-term gain, and by encouragement of ethical behaviour.

Beaver's paper was published in 1973. Consequently, it predates SFAC 1 (issued in 1978) and SFAC 2 (1980) by several years. However, it provides a good example of the early enthusiasm of accounting theorists for efficient securities markets. It also highlights the type of disclosure-oriented thinking that led to the formal statement of the usefulness criterion by the FASB in SFAC 1.

4.3.2 Summary

Beaver argues that securities market efficiency has several implications for financial reporting. First, managers and accountants should not be concerned about which accounting policies firms use unless different accounting policies have direct cash flow effects. Many accounting policy alternatives, about which accountants have argued long and hard, do not have such cash flow effects. Second, firms should disclose as much information about themselves as is cost-effective—the fact of disclosure and not the form it takes is what is important. The efficient market will prefer the least costly form of disclosure, other things equal. One can argue, however, that financial statements are a cost-effective disclosure medium. Third, firms need not be concerned about the naïve investor when choosing disclosure policies and formats. Such persons are price-protected, because efficient security prices fully reflect all that is publicly known about those securities. Furthermore, there is a variety of media, including websites, management disclosures, and financial institutions, whereby investors can take advantage of sophisticated information without needing to fully understand it themselves. Finally, the efficient market is interested in useful information from any source, not just accounting reports.

4.4 THE INFORMATIVENESS OF PRICE

4.4.1 A Logical Inconsistency

The careful reader may have noticed an inconsistency in our discussion of efficient securities markets to this point. Recall that efficiency implies that the market price of a security at all times fully reflects all that is publicly known about that security. What is it that drives market price to have this "fully reflects" characteristic? It is the actions of informed investors who are always striving to obtain and process information so as to make good buy/sell decisions.

However, by the definition of market efficiency, all available information is already reflected in market price. That is, the price is **fully informative**.[3] Since information acquisition is costly, and investors could not expect to beat the market when the market price already reflects all publicly known information, investors would simply stop gathering information and rely on market price as the best indicator of future security returns. For example, a simple decision rule would be to buy and hold a diversified investment portfolio, changing its composition only if the risk–return tradeoff of the portfolio gets out of line.

The logical inconsistency, then, is that if prices fully reflect available information, there is no motivation for investors to acquire information; hence, prices will not fully reflect available information. In terms of football forecasting, the forecasters would stop putting effort into their forecasts because they can't beat the consensus forecast, but then the consensus forecast would lose its superior forecasting ability. Technically speaking, the problem here is that stable equilibrium prices do not exist, as shown by Grossman (1976).

This has potentially serious implications for accounting theory, since a lack of equilibrium makes it problematic whether financial statement information is useful to investors. Also, it is contrary to what we observe. SFAC 1 (Section 3.8) certainly implies that investors find financial reporting useful, for example.

However, there is a way out of the inconsistency. This is to recognize that there are other sources of demand and supply for securities than the buy/sell decisions of rational, informed investors. For example, people may buy or sell securities for a variety of unpredictable reasons—they may decide to retire early, they may need money to pay gambling debts, they may have received a "hot tip," etc. Such persons are called **liquidity traders** or **noise traders**. Their buy/sell decisions will affect a security's market price, but the decisions come at random—they are not based on a rational evaluation of information.

To illustrate how market price is affected by the presence of noise trading, suppose that a rational investor observes a security's price to be higher than he/she had expected based on all the information currently possessed by that investor. Now, our investor knows that other rational investors also have their own information about the security and that this information may well be more favourable. These other investors may be buying and driving up the security's price. As a result, our investor is inclined to raise his/her expectation of the security's value. While the investor does not know what information other investors have, it is rational to believe that the information is favourable and this may be what is driving up the security's price.

However, our investor also knows that the higher-than-expected security price may simply be due to noise trading. Perhaps someone has temporarily invested a large cash windfall in a randomly chosen portfolio of securities, including the security in question. If so, our investor would *not* want to increase his/her expectation of the security's value. Since each scenario is possible, the investor will increase his/her expectation of the security's value, but to an amount *less than* the security's current market price. That is, the rational investor responds by putting some weight on each possibility. In effect, the current share price conveys *some* information about share value but not *all* information as in the fully informative case.

For our purposes, an important point to note is that investors now have an incentive to update their beliefs by gathering more information. If they can find out which explanation is the correct one, this can quickly be turned into a profitable investment opportunity. For example, if further investigation reveals that the firm is undervalued, the investor will buy. If, instead, investigation reveals that the share price is temporarily high due to noise trading, the investor will sell short. The efforts of investors to do this will then drive share price towards its efficient value. Presumably, at least some of this additional information will come from analysis of financial statements.

Investor behaviour such as this is another example of rational expectations—the investor quickly figures out how much weight to put on the possibility that share price reflects noise trading and how much on the possibility that other investors have better information. Security prices are said to be **partially informative** in the presence of noise trading and rational expectations. Note that market prices are still efficient in the presence of noise trading, but in an *expected value* sense, since noise has expectation zero. That is, the investor expects *a priori* that a security's market price fully reflects all publicly available information, but, *ex post*, further investigation may reveal that this is not the case.

The extent to which investors gather additional information depends on a number of factors, such as how informative price is, the quality of financial statement information, and the costs of analysis and interpretation. These factors lead to empirical predictions about how security market prices respond to financial statement information. For example, we might expect that price will be more informative for large firms, since they are more "in the news" than small firms, hence their market price will incorporate considerable information. This reduces the ability of financial statements to add to what is already known about such firms. Thus, we would predict that security prices respond less to financial statement information for large firms than for small firms.

Furthermore, note that firm management has an incentive to cater to the desire of investors to ferret out information. For example, management may have inside information that leads it to believe the firm is undervalued. To correct this, management may engage in **voluntary disclosure**, that is, disclosure of information beyond the minimum requirement of GAAP and other reporting standards. Such disclosure can have credibility, even if unaudited, since legal liability and reputation damage impose discipline on managers' reporting decisions. Unfortunately, there are limitations on voluntary disclosure, not only because the legal system and reputation concerns may be unable to completely enforce credibility but because management will not want to reveal information that would give away competitive advantage.

However, voluntary disclosure is much more complex and subtle than simply disclosing information. Management can signal inside information by its choice of accounting policies and, indeed, by the nature and extent of voluntary disclosure itself. The rational investor will thus look carefully at what the manager *does* in terms of accounting policy choice and disclosure. For example, instead of directly revealing good news about a secret research program, a firm that feels it is undervalued could choose very conservative accounting policies. This reveals inside information about the firm's future performance since management would not likely adopt conservative policies unless it felt that future cash flows and earnings would be high enough to absorb the resulting conservative "hit." Even though they may not know what the specific inside information is, rational investors would respond to these conservative policies by bidding up the firm's share price. This means that there are potential rewards to investors, and analysts, for careful and complete analyses of firms' annual reports. Such analyses may identify mispricing and can quickly be turned into profitable investment decisions.

Also, an increase in the quality of financial statement disclosure, other things equal, should lead investors to increase their utilization of financial statement information relative to price. For example, the requirement by securities commissions that firms include **management discussion and analysis (MD&A)** in their annual reports may increase market price reactions to annual reports. Annual reports should have higher information content with MD&A than without it. MD&A is discussed in Section 4.8.

We conclude that the term "fully reflects" in the efficient securities market definition has to be interpreted with care. It does not mean that security prices are fully informative with respect to available information at all points in time. Indeed, if it did, this would have adverse implications for the usefulness of financial statements. Rather, the term should be interpreted as reflecting a tension between the level of informativeness allowed by noise and liquidity traders, and the ability of investors and analysts to identify mispriced securities through analysis of the financial statements proper, supplementary disclosures, accounting policy choice, the nature and extent of voluntary disclosure, and, indeed, of all other available information. With this interpretation in mind, it is important to point out that the implications of security market efficiency as outlined

by Beaver in Section 4.3 continue to apply. In particular, the importance of full disclosure remains.

4.4.2 Summary

While the ability of a market price to *average out* individual differences in information processing, as we saw in the football forecasting example, is on the right track, the process of price formation in securities markets is much more complex than this. Through consideration of ways that rational investors can become more informed by careful analysis of managers' disclosure decisions, and by allowing for other sources of demand and supply for securities than from rational, informed investors, accountants are beginning to understand the role of information in price. The presence of non-rational traders does not necessarily mean that the efficient securities market concept that share prices "fully reflect" information is invalid, but rather that this concept must be interpreted with care.

Improved understanding of the process of price formation leads to empirical predictions of how security prices respond to accounting information and, ultimately, enables accountants to prepare more useful financial statements.

4.5 A CAPITAL ASSET PRICING MODEL

We are now in a position to formalize the relationship between the efficient market price of a security, its risk, and the expected rate of return on a security. We shall do so by means of the well-known Sharpe-Lintner capital asset pricing model (CAPM) (Sharpe, 1964; Lintner, 1965).

First, we need some preliminaries. Define R_{jt}, the net rate of return on the shares of firm j for time period t, as:

$$R_{jt} = \frac{P_{jt} + D_{jt} + P_{j,t-1}}{P_{j,t-1}} = \frac{P_{jt} + D_{jt}}{P_{j,t-1}} - 1 \qquad (4.1)$$

where:

P_{jt} is the market price of firm j's shares at the end of period t

D_{jt} is dividends paid by firm j during period t

$P_{j,t-1}$ is the market price of firm j's shares at the beginning of period t

This is the return concept used in Examples 3.1, 3.2, and 3.3. It is a *net* rate of return given that the opening market price is subtracted in the numerator. We can also define a *gross rate of return* as $1 + R_{jt}$, where:

$$1 + R_{jt} = \frac{P_{jt} + D_{jt}}{P_{j,t-1}}$$

Since the only difference between the two rates of return concepts is the 1, we can use them interchangeably. In fact, to conform to common practice, we will usually refer to both net and gross rates of return as simply **returns**.

We can think of returns as either *ex post* or *ex ante*. *Ex post*, we are at the end of period t and looking back to calculate the return actually realized during the period, as in Equation 4.1. Alternatively, we can stand at the beginning of period t (i.e., at time t – 1) and think of an *ex ante* or expected return as:

$$E(R_{jt}) = \frac{E(P_{jt} + D_{jt})}{P_{j,t-1}} - 1 \qquad (4.2)$$

That is, expected return for period t is based on the expected price at the end of the period plus any dividends expected during the period, divided by the current price.

Now, consider an economy with a large number of rational, risk-averse investors. Assume that there is a risk-free asset in the economy, with return R_f. Assume also that security markets are efficient and transaction costs are zero. Then, the Sharpe-Lintner CAPM shows that:

$$E(R_{jt}) = R_f(1 - \beta_j) + \beta_j E(R_{Mt}) \qquad (4.3)$$

where β_j is the beta of share j and R_{Mt} is the return on the market portfolio for period t.

Note that the model is in terms of the market's *expected* returns. Equation 4.3 states that at the beginning of period t, firm j's expected return for the period equals a constant $R_f(1 - \beta_j)$ plus another constant β_j times the expected return on the market portfolio. $E(R_{jt})$ can also be interpreted as the firm's cost of equity capital, since it represents the expected return demanded by the market on that firm's shares.

Strictly speaking, markets do not have expectations—individuals do. One way to think of the market's expectations is that the price of a share behaves *as if* the market holds a certain expectation about its future performance. More fundamentally, the market price of a share includes a sort of average of the expectations of all informed investors, much like the consensus forecast in the Beaver football example (Section 4.2.2) includes an average expectation of the forecasters.

It is not difficult to see the intuition of the model. Since rational investors will fully diversify when transactions costs are zero, the only risk measure in the formula is β_j. Firm-specific risk does not affect share price because it disappears in fully diversified portfolios. Also, note that the higher is β_j the higher is expected return, other things equal. This is consistent with risk aversion, since risk-averse investors will require a higher expected return to compensate for higher risk.

Note also the role of the current market price $P_{j,t-1}$ in the model. The return demanded by the market on share j for period t, that is, $E(R_{jt})$ in Equation 4.3, is a function only of R_f, R_{Mt}, and β_j. The current market price does not appear. However, in Equation 4.2, given expected end-of-period price P_{jt} and dividends D_{jt}, we see that $P_{j,t-1}$ in the denominator will adjust so that the right-hand side of Equation 4.2 equals $E(R_{jt})$. That is, a share's current price will adjust so that its expected return equals the return demanded by the market for that share as given by Equation 4.3.

We can now see how new information affects firm j's share price. Suppose that at time $t-1$ (now) some new firm-specific information comes along that raises investors' expectations of P_{jt} (and possibly also of D_{jt}), without affecting R_f, β_j, or $E(R_{Mt})$. This will throw Equation 4.2 out of balance, since $E(R_{jt})$ from Equation 4.3 does not change. Thus, $P_{j,t-1}$, the current price, must rise to restore equality. This, of course, is consistent with market efficiency, which states that the market price of a security will react immediately to new information.

To pursue further the effect of information on share price in the CAPM, suppose that in addition to any effect on P_{jt}, the new information is more informative, in the sense of higher main diagonal probabilities of the firm's information system (Section 3.3.2). Then, greater financial reporting informativeness can reduce β_j, thereby reducing cost of capital. This was shown by Lambert, Leuz, and Verrecchia (2007). They point out that information about one firm often affects the market's expectations about other firms. For example, suppose firm j is General Electric Co. (GE). If GE adopts a more informative financial reporting system for its quarterly earnings, the market, and thus GE's share price, is better able to predict GE's future performance. However, due to GE's size and diversity, its performance provides the market with information about the future performance of other firms, so that the market is also better able to predict the future performance and share price of these firms. That is, with more informative reporting, *each* firm's share price better reflects that firm's *firm-specific* performance, so that the co-movement between them (i.e., the covariance between GE's share price and share prices of other firms) falls. Since a stock's beta is essentially the covariance between its return and the return of other firms in the market (Section 3.7.1), GE's beta will fall, reducing its cost of capital. Lambert, Leuz, and Verrecchia point out that lack of informativeness in financial reporting cannot be diversified away when reporting precision affects the covariance terms, since these terms increase in number as the number of firms in the portfolio increases. Consequently, the possibility of reducing investor risk by more informative reporting is of interest to accountants.

For our purposes, there are three main uses for the CAPM formula. First, it brings out clearly how share prices depend on investors' expectations of future share price and dividends. If these expectations change (the numerator of Equation 4.2), current price $P_{j,t-1}$ (the denominator) will immediately change to reflect these new expectations. For a given change in expectations, and given R_f and $E(R_{Mt})$, the amount of the change in current price depends only on the share's beta. To put this another way, the larger the change in expectations, the larger the change in price, other things equal.

Second, by reverting to an *ex post* view of returns, the CAPM provides us with a way of separating the realized return on a share into expected and unexpected components. To see this, consider the following version of the model, where we are now at the end of period t and looking back:

$$R_{jt} = \alpha_j + \beta_j R_{Mt} + \epsilon_{jt} \tag{4.4}$$

This version of CAPM is called the **market model**. It states that the realized return R_{jt} for the period is the sum of the beginning-of-period *expected* return $(\alpha_j + \beta_j R_{Mt})$ and the *unexpected* or **abnormal**[4] return ϵ_{jt}. The expected return comes from the CAPM, with $\alpha_j = R_f(1 - \beta_j)$. The ϵ_{jt} captures the impact on R_{jt} of all those events during period t that were not expected at the beginning of the period. By definition in an efficient market, $E(\epsilon_{jt}) = 0$, since new information comes along randomly. But, in any period t the *realized* value of ϵ_{jt} need not be zero. Its realized value will depend on just what information did come along. Thus, the market model enables an *ex post* separation of the realized return R_{jt} into expected $(\alpha_j + \beta_j R_{Mt})$ and unexpected or abnormal (ϵ_{jt}) components.

Third, the market model provides a convenient way for researchers and analysts to estimate a stock's beta. Notice that the market model is presented in the form of a regression equation. By obtaining past data on R_{jt} and R_{Mt}, the coefficients of the regression model can be estimated by least-squares regression. If we assume that the market is able to form unbiased expectations of R_{Mt} (so that R_{Mt} is a good proxy for $E(R_{Mt})$, which is unobservable), and if we assume that β_j is stationary over time, then the coefficient of R_{Mt} from least-squares regression is a good estimate[5] of β_j. Furthermore, the reasonableness of the estimation can be checked by comparing the estimated coefficient α_j with $R_f(1 - \beta_j)$—the two should be the same.

As we will see in Chapter 5, much empirical research in accounting has required an accurate estimate of beta, and we will return to its estimation in Section 7.5.1. For now, it is important to realize that the CAPM provides an important and useful way to model the market's expectation of a share's returns and a firm's cost of capital, and that the model depends crucially on securities market efficiency. Also, it shows clearly how new information affects current share price.

For later reference, two points about the CAPM should be noted. First, it assumes rational expectations. That is, investors are assumed to know stock's betas and the expected return on the market. As a practical matter, these may not be accurately known. Then, an additional source of risk arises, called **estimation risk**. For example, as described above, the market model can be used to estimate beta. However, this estimate is unlikely to be completely accurate, especially if only a few periods of data are available for the estimation, or if beta changes. Then, the actual risk borne by the investor will differ from desired risk, distorting his/her risk–return tradeoff. To some extent, this estimation risk may be diversified away (overestimates of beta for some shares may be offset by underestimates for others). However, if different investors have different beta estimates, this will affect their investment decisions, thereby introducing additional volatility into share returns over and above that recognized by the CAPM. To compensate for this added risk, investors will demand an extra return.

Second, the CAPM considers information asymmetry only to a limited extent. With information asymmetry, outside investors face the risk that insiders may profit at their expense. We will regard this as another component of estimation risk, since investors' estimates of underlying firm parameters, such as the ability and integrity of management, may be incorrect if management exploits inside information. If we regard the exploiting of inside information as contributing to low informativeness of financial reporting, the

CAPM model of Lambert, Leuz, and Verrecchia (2007), discussed earlier, suggests that more informative reporting will reduce estimation risk.

However, since inside information, and the possibility that insiders will exploit it, are omnipresent, estimation risk may loom sufficiently large in investors' minds that, in addition to any effect on beta, it becomes an additional risk factor *to* beta. If so, investors will demand higher expected return than given by the CAPM.

Thus, while it is a good place to start, the CAPM may understate cost of capital for many firms. As we point out in the next section, estimation risk is important for accountants, since it may be reduced by full and timely disclosure.

4.6 INFORMATION ASYMMETRY

4.6.1 A Closer Look at Information Asymmetry

In this section, we take a closer look at the notion of "publicly available" information in the efficient securities market definition. This leads directly to what is undoubtedly the most important concept of financial accounting theory—*information asymmetry*. Frequently, one type of participant in the market (sellers, for example) will know something about the asset being traded that another type of participant (buyers) does not know. When this situation exists, the market is said to be characterized by information asymmetry. As mentioned in Section 1.6, there are two major types of information asymmetry—adverse selection and moral hazard. We now consider these in greater detail.

First, note that information asymmetry is an important reason for market incompleteness (Section 2.6). That is, in extreme cases, a market may collapse, or fail to develop in the first place, as a result of information asymmetry. To illustrate, consider the market for insurance policies. Assuming you are risk-averse, you may wish to buy insurance against the possibility of failing to attain your university or college degree or professional accounting designation. You would be better off with such a policy, at least if the cost was fair. Serious illness or accident may prevent your completion of the course of studies, and you could eliminate this risk if you had a policy that reimbursed you for your loss of the present value of the increased future income that would follow the attainment of your degree or designation. However, offering such a policy would create severe difficulties for the insurance company. One difficulty is that people who were sick would flock to enroll in educational programs (called an adverse selection problem because people whose health is adverse to the insurance company's best interests self-select themselves to buy insurance). Then, when their illness led to their failure, they could collect on their policies and still enjoy the monetary fruits of a degree.

Another problem is that if you owned such a policy, you would probably shirk your studies, even if you were perfectly healthy. Why put in all the time and effort to complete your course of studies when, by merely failing, you could receive equivalent compensation from your insurance policy? This is a moral hazard problem, for you are tempted to cheat the company by shirking your studies. Note that requiring a medical certificate would not

be of much use here, because of the difficulty in establishing that it was the illness that led to the failure.

As a result, no insurance company would sell you a policy that would reimburse you for your full income loss if you failed to attain your degree. The problem is information asymmetry. You have a major information advantage over the company, because the company can only observe whether you fail, not whether your illness, accident, or shirking caused you to fail.

Faced with information disadvantages of this magnitude, the company responds by not writing insurance policies of the type described, contributing to the market incompleteness noted in Section 2.6.

In other cases, information asymmetry is not so severe as to prevent the market from developing. Nevertheless, the market does not work as well as it might. This situation was studied by Akerlof (1970). An example of a market characterized by information asymmetry is the used car market. The owner of a car will know more about its true condition, and hence its future stream of benefits, than would a potential buyer. This creates an adverse selection problem, since the owner may try to take advantage of this inside information by bringing a "lemon" to market, hoping to get more than it is worth from an unsuspecting buyer. However, buyers will be aware of this temptation and, since they don't have the information to distinguish between lemons and good cars, will lower the price they are willing to pay for any used car, a process called **pooling**. As a result, many cars—the good ones—will have a market value that is less than the real value of their future stream of benefits. The arbitrage effect, whereby cars of similar service potential must sell for similar prices, operates less effectively when it is difficult to know exactly what the service potential of a used car is. Thus, owners of good cars are less likely to bring them to market. In other words, the market for used cars does not work as well as it might. This is another source of market incompleteness—a market can exist but be incomplete in the sense that purchasers cannot always buy a car of the exact type and condition they want.

It is interesting to note the variety of devices that markets use to reduce the effects of information asymmetry. Thus, used car markets are characterized by guarantees, safety certificates, test drives, dealers who attempt to establish a good reputation, and so on. Insurance markets are characterized by medical examinations for life and health insurance, co-insurance and deductible clauses for fire insurance, premium reductions for good driving records, and so on. However, because they are costly, these disclosure devices do not completely eliminate the problem. Nevertheless, they may be sufficiently effective to at least allow the market to operate, albeit not as well as it would in the absence of information asymmetry.

One of the reasons why information asymmetry is of such importance to accounting theory is that *securities markets* are subject to information asymmetry problems, such as insider information and insider trading. Even if security market prices fully reflect all publicly available information, it is still likely that insiders know more than outsiders about the true state of the firm. If so, they may take advantage of their information to earn excess profits by biasing, delaying, or withholding its public release while they buy or sell

shares on the basis of this information. This is another example of the adverse selection problem, since insiders will be attracted by these opportunities, which are *adverse* to the interests of investors. Of course, investors will be aware of this estimation risk and will lower the amounts that they would otherwise be willing to pay for all shares to reflect their expected losses at the hands of insiders. Just like the used car market, the efficient securities market is subject to incompleteness. It does not work as well as it might since investors cannot be sure of buying a security with the exact expected return and risk that they want.

The collapse of Enron and WorldCom outlined in Section 1.2 is an example of the adverse effects of information asymmetry on securities markets. Following these and other financial reporting failures, investors realized that the shares of many firms were lemons. As a result, their confidence in the informativeness of financial statements of all firms collapsed as they realized they were facing much higher estimation risk than they had thought. A major fall in share prices took place as investors reduced the amounts they were willing to pay or, in extreme cases, withdrew from the market completely.

It may seem strange that markets can be efficient but yet investor confidence can collapse. However, we can reconcile these seemingly conflicting notions by introducing the concept of the **fundamental value** of a share:

> *The **fundamental value** of a share is the value it would have in an efficient market if there is no inside information. That is, all information about the share is publicly available.*

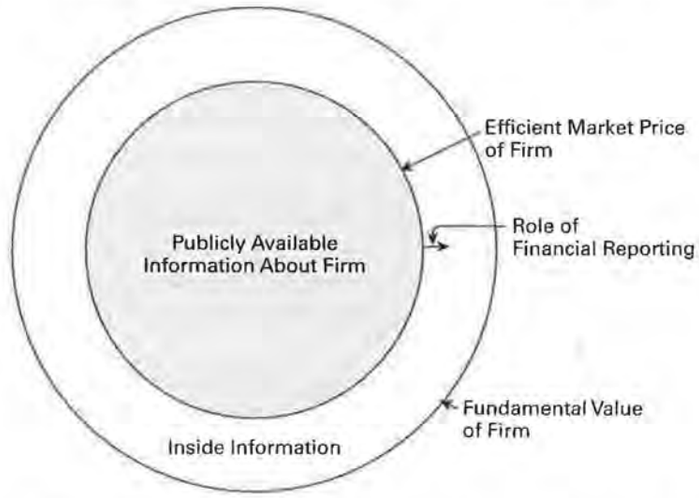
Obviously, prior to their collapse, the market prices of Enron and WorldCom shares did not reflect fundamental value, even though the market may have been efficient relative to the information about these firms that *was* publicly available. As a result of these and other such episodes, investors realized that many other firms' shares may have the same problem, leading to a general loss of confidence.

Of course, fundamental value is a theoretical ideal. We would not expect that inside information can be completely eliminated. It may not be cost effective for a firm to directly reveal strategic information about research in process or plans for a takeover bid, for example.

The steps taken by governments and accounting bodies to restore public confidence following the Enron and WorldCom collapses, outlined in Section 1.2, can be regarded as attempts to reduce adverse selection and estimation risk by improving financial reporting informativeness. Many of these steps involve policies of full disclosure, to expand the set of information that is publicly available and reduce biases resulting from incorrect or misleading information in the public domain. Also, timeliness of reporting will reduce the ability of insiders to profit from their information advantage. Thus, we can think of financial reporting as a device to control the adverse selection problem and estimation risk, thereby improving the working of securities markets and reducing incompleteness. Figure 4.2 illustrates this role.

The outer circle of the figure depicts the firm's fundamental value. The inner circle depicts the information underlying the efficient market price of the share, being all

Figure 4.2 Role of Financial Reporting in an Efficient Market



publicly available information. The difference between the inner and outer circle depicts inside information. Inside information is subject to adverse selection, creating estimation risk. The role of financial reporting is to convert inside information into outside information, thereby enlarging the inner circle. Obviously, the inner circle cannot fully reach the outside, since the cost of eliminating all inside information would be astronomic. Nevertheless, we frequently refer to markets where the inner circle is "large" relative to the outside circle as markets that **work well**.[6]

Market collapse, as in the case of Enron and WorldCom, will take place if investors realize that much of the information in the inner circle is not useful, that is, not informative of the true state of the firm. In effect, the inner circle collapses, taking fundamental value and share price with it.

4.6.2 Summary

Under ideal conditions, the firm's market value fully reflects *all* information. That is, price equals fundamental value. When conditions are not ideal, market value fully reflects all *publicly available* information, if security markets are efficient.

The difference between these two information sets includes **inside information**. The ability of insiders to profit from their information advantage is an example of the adverse selection problem. The possibility of adverse selection creates estimation risk for investors, which can increase firms' costs of capital above their CAPM values. Full and timely disclosure will reduce this problem, thereby improving the working of securities markets. Since reporting of all inside information is too costly, however, the adverse selection problem will still be present.

4.7 THE SOCIAL SIGNIFICANCE OF SECURITIES MARKETS THAT WORK WELL

In a capitalist economy, securities markets are the primary vehicle whereby capital is raised and allocated to competing investment needs. Consequently, it is socially desirable that these markets work well in the sense that security prices provide correct values to guide the flow of investment funds. For example, a firm that has high-expected-value capital projects will be encouraged to invest in them if it receives a high price for its securities, and investment should be discouraged in firms that do not have high-expected-value capital projects. This will happen to the extent that security prices are close to fundamental value. Of course, this is what society wants, since investment capital is in scarce supply. Social welfare will be enhanced if scarce capital goes to the most productive alternatives.

However, as mentioned, security prices do not fully reflect fundamental value in the presence of inside information. Investors will be aware of the estimation risk resulting from adverse selection and insider trading. Then, a "lemons" phenomenon comes into play. Investors recognize that the market is not a "level playing field" and either withdraw from the market or lower the amount they are willing to pay for *any* security. As a result, firms with high-quality investment projects will not receive a high price for their securities, and the market is not working as well as it should. A related problem is that if too many investors withdraw, the market becomes **thin** or, equivalently, it loses **depth**, where depth is the number of shares that investors can buy or sell without affecting the market price. When depth is low, potential investors may not be able to buy or sell all they want of a security at the market price, which further hampers investment.

Empirical evidence on the importance of markets that work well for efficient capital allocation is provided by Wurgler (2000). He estimates the efficiency of capital allocation for 65 countries over the years 1963–1995 and finds that countries with more firm-specific information incorporated into share prices (relative to industry- and economy-wide information, which affects all share prices) enjoy greater capital allocation efficiency.[7] Note that more firm-specific information incorporated into share prices is just another way of saying that the market is working better, or, equivalently, that there is less inside information.

Of course, developed capitalist economies have a variety of mechanisms for promoting the operation of securities markets. One such approach is regulation. Thus, we witness government securities commissions, as outlined in Section 1.9.5. These agencies create and enforce regulations to, for example, control insider trading and promote prompt disclosure of significant events, with penalties for violation. If such regulation is effective, estimation risk resulting from inside information is reduced. Investors will then remove firms from the lemons category and, as a result, will be willing to pay higher prices for securities than they otherwise would.

However, the efficient market can provide **incentives** for the release of inside information over and above that required by regulation. Just as a used car dealer who develops a reputation for honesty and fair dealing will enjoy higher sales prices, a firm with a credible policy of full disclosure beyond the regulatory minimum will enjoy higher share prices and lower cost of capital. This is because full disclosure reduces investors' concerns about inside information.

Obviously, regulations and market incentives are not mutually exclusive—we witness both in our economy. Regulation is like a "stick" and requires penalties to enforce it. The need for regulation will be reduced, however, to the extent that "carrots," such as improved reputation and higher share price, operate to motivate full disclosure. In both cases, the economy benefits since security prices are closer to fundamental firm value.

We may conclude that the social benefits of securities markets that work reasonably well will be attained if the following two conditions are met:

- All useful information is publicly available, at least up to the ability of penalties and incentives to cost-effectively motivate full disclosure.
- Securities market prices are efficient relative to publicly available information.

4.8 AN EXAMPLE OF FULL DISCLOSURE

4.8.1 Introduction

In this section, we consider an important full-disclosure accounting standard. Specifically, we outline and illustrate **management discussion and analysis (MD&A)**. This is a standard that requires firms to provide a narrative explanation of company performance, financial condition, and future prospects. The intent is to assist investors to interpret the firm's financial statements.

While of interest in its own right, this standard also provides an important illustration of how the amount of useful information in the public domain can be increased. The MD&A standard lies between the carrot-and-stick approaches to information release. While all public companies have to provide MD&A, there is some latitude in the extent to which they meet the letter of its disclosure requirements. For example, while some firms may provide what is mainly a rehash of information already available from the financial statements, others may go beyond the minimum requirements by releasing inside information about, for example, future business strategies, plans, and prospects.

4.8.2 Management Discussion and Analysis

Objectives of MD&A Our coverage of MD&A is based on the requirements of National Instrument 51-102 of the OSC, effective in 2004. Through the Canadian Securities Administrators, harmonized MD&A regulations now apply across Canada. Similar requirements are laid down in other jurisdictions, such as that of the SEC in the United States.

MD&A is a narrative explanation, through the eyes of management, of company performance, financial condition, and future prospects. It is to be written in language that investors are able to understand. Its objectives include:

- To help current and prospective investors understand the financial statements.
- To discuss information not fully reflected in the financial statements.
- To discuss important trends and risks.
- To provide information about the quality, and potential variability, of earnings and cash flow, to help investors determine if past performance is indicative of future performance.

To implement these objectives, specific disclosure requirements include:

- Discuss overall firm performance, and revenue, asset, and liability items. Explain factors that have caused period-to-period variations, such as acquisitions and dispositions. Indicate with which set of accounting principles the financial statements are consistent.
- Discuss the firm's ability to meet short- and long-term liquidity needs.
- Discuss important commitments and off-balance-sheet arrangements.
- Discuss changes in accounting policies.
- Explain and discuss trends, risks, and uncertainties that are expected to affect future performance. Describe how financial instruments are used to manage risks. Explain needed changes to forward-looking information previously provided that is now known to be in error because of subsequent developments.

Several aspects of these requirements should be noted:

- The MD&A standard has a clear forward-looking orientation. For example, known trends affecting future performance should be discussed. This orientation is consistent with the conceptual frameworks, outlined in Section 3.8, which assert investors' interests in assessing prospective cash receipts from their investments.
- The concept of an information system is implicit in the MD&A standard. As discussed in Section 3.3.2, the information system specifies the relationship between current financial statement evidence and future firm performance. This is recognized in the standard's objective of helping investors to determine if past firm performance is indicative of future performance.
- Also consistent with its future orientation, the standard tilts towards relevance in the relevance/reliability tradeoff. That is, there is less need to wait until objective evidence is available than in the financial statements. However, MD&A does not completely ignore reliability considerations. For example, NI 51-102 requires that the firm's MD&A be approved by its board of directors. Presumably, this is to reduce the likelihood of manager manipulation and bias. Also, reminiscent of the adjustments of previous estimates in RRA, the firm is required to discuss any needed changes to forward-looking information provided in previous MD&A that is now known to be in error as a result of further developments. This requirement helps with reliability since the manager knows that errors or biases in estimates will have to be explained later.
- The MD&A standard seems reasonably consistent with the theories of rational investor decision-making and market efficiency. For example, it emphasizes full disclosure and recognizes that investors need forward-looking information and information about risk. Indeed, the standard can be regarded as an attempt to make securities markets work better by providing a vehicle for management to disclose inside information. This consistency with theory is not complete, however. For example, the emphasis is on firm-specific risk disclosure. Yet, the theory of investment suggests that much of this risk can be diversified away. Nevertheless, the disclosures should help to reduce investors' estimation risk.

MD&A is to be written in plain language. While this is difficult to disagree with, it is not consistent with the argument of Beaver (Section 4.3) that firms need not be too concerned about the naïve investor, due to the price protection characteristic of efficient market prices.

With this background in mind, we now illustrate some of these considerations by means of the MD&A of a large Canadian corporation.

An Example of MD&A Disclosure Exhibit 4.1 reproduces portions of the MD&A and related disclosures in the 2006 *Annual Report* of Canadian Tire Corporation, Limited, including all of its risk management discussion. Canadian Tire won the Award of Excellence in Annual Reporting of the 2006 CICA Corporate Reporting Awards for the best overall annual report for its industry category.

Canadian Tire's MD&A begins with an overview of the business, then describes its strategic plan, including the performance indicators (financial aspirations) it uses to monitor its financial goals. Recent performance relative to these goals is also disclosed. The firm also provides extensive discussion of current operations and financial conditions, but this is not reproduced here.

Canadian Tire discusses the performance and prospects of its major divisions, including its retail division reproduced in the exhibit. The discussion covers market trends, how Canadian Tire positions itself in its markets, and new initiatives. Note, in particular, its focus on the scope for growth.

With respect to its discussion of risk management, note the variety of risks Canadian Tire faces. These range from information management risk to the risk to its profitability resulting from the actions of competitors, to the seasonal nature of its business, to credit risks arising from failure of contracting parties to fulfil their obligations, to price risks, to disclosure and insider trading risk. The steps that Canadian Tire takes to control these risks, such as its hedging policies, and credit granting and collection policies, are outlined.

Discussion MD&A represents a major step taken by securities commissions to set standards that go beyond the requirements of GAAP. The reason why securities commissions become involved in MD&A disclosure regulation, presumably, is that the accounting

recommendations of the CICA *Handbook* relate to the financial statements, whereas the concern of the OSC and other securities regulators is with the disclosures by management contained elsewhere in the annual report, to which the CICA *Handbook* does not apply.

Exhibit 4.1
MD&A Extracts, from 2006 Annual Report, Canadian Tire Corporation, Limited

1.0 OUR COMPANY

1.1 Overview of the Business

Canadian Tire has been in business for 85 years, offering everyday products and services to Canadians throughout its growing network of interrelated businesses. Canadian Tire, our Associate Dealers, franchises and Petroleum agents operate more than 1,100 general merchandise and apparel retail stores, gas stations and car washes. The Company also provides a variety of financial services to Canadians, primarily its proprietary Options MasterCard™ and Canadian Tire-branded credit cards, personal loans, insurance and warranty products. In October 2006, Financial Services began offering high interest savings accounts, guaranteed investment certificates and residential mortgages in two pilot markets.

Canadian Tire's model of interrelated businesses provides market differentiation and competitive advantage. Canadian Tire's businesses benefit from the Company's key capabilities in merchandising, marketing and advertising, supply chain and real estate, which enable us to achieve a greater level of efficiency. Canadian Tire's primary loyalty program, Canadian Tire 'Money'—shared by CTR, Financial Services and Petroleum—is an example of how interrelationships between the businesses create a strong competitive advantage for the Company.

The success of the loyalty program has proven—through high customer acceptance and redemption—to be a key element of Canadian Tire's total customer value proposition and is designed to drive higher total sales across CTR, Financial Services and Petroleum. For example, a customer who fills up with gas at Petroleum's gas stations and uses Canadian Tire credit cards spends considerably more at Canadian Tire stores, on average, than a customer who only shops at Canadian Tire stores.

Mark's has already derived meaningful cost and operating synergies from Canadian Tire's strengths in real estate and supply chain since its acquisition by the Company in 2002. Canadian Tire co-locates Mark's and Canadian Tire stores in certain locations and, increasingly, is extending its national marketing and advertising channels to boost customer traffic and loyalty to Mark's and increase its brand penetration.

Canadian Tire's four main businesses are described below:

CTR is Canada's most shopped general merchandise retailer with a network of 468 Canadian Tire stores that are operated by Associate Dealers, who are independent business owners. Associate Dealers buy merchandise from the Company and sell it to consumers in Canadian Tire stores. CTR also includes our online shopping channel and PartSource.

Management's Discussion and Analysis

PartSource is a chain of 63 specialty automotive hard parts stores that cater to serious "do-it-yourselfers" and professional installers of automotive parts. The PartSource network consists of 46 franchise stores and 17 corporate stores.

Mark's is one of Canada's leading clothing and footwear retailers, operating 339 stores nationwide, including 287 corporate and 52 franchise stores that offer men's wear, women's wear and industrial apparel. Mark's operates under the banner "Mark's", and in Quebec, "L'Équipeur". Mark's also conducts a business-to-business operation under the "Imagewear by Mark's Work Wearhouse" brand.

Petroleum is Canada's largest independent retailer of gasoline with a network of 260 gas stations, 251 convenience stores and kiosks, 74 car washes, 13 Pit Stops and 92 propane stations. The majority of Petroleum's sites are co-located with Canadian Tire stores as a deliberate strategy to attract customers to Canadian Tire stores. Substantially all of Petroleum's sites are operated by agents.

Financial Services markets a range of Canadian Tire-branded credit cards, including the Canadian Tire Options MasterCard, Commercial Link MasterCard and Gas Advantage MasterCard. Financial Services also offers personal loans, insurance and warranty products and an emergency roadside assistance service called "Canadian Tire Roadside Assistance". Canadian Tire Bank, a wholly-owned subsidiary of Financial Services, is a federally regulated bank that manages and finances Canadian Tire's MasterCard and retail credit card portfolios, as well as the personal loan portfolio. In October 2006, Canadian Tire Bank began offering high interest savings accounts, guaranteed investment certificates and residential mortgages in two pilot markets.

3.0 OUR STRATEGY

3.1 Five-year Strategic Plan

Canadian Tire has a five-year Strategic Plan to guide the Company's growth from 2005 to 2009. The Plan has five strategic imperatives outlined below. Each of these imperatives is supported by specific initiatives, outlined in section 4.2, on business segment performance.

1 — grow sales and revenues

2 — improve our earnings performance

3 — embed a *Customer for Life* culture across our entire organization

4 — extend growth and performance beyond 2009

5 — enhance value creation through financial flexibility and maximization of the value of real estate assets

3.2 Financial Aspirations

As part of our initial strategic planning process, we developed five financial aspirations that we believe are important and logical metrics for both the Company and its shareholders to track progress against the Plan. These metrics are not to be construed as guidance or forecasts for any individual year within the Plan, but rather as long-term targets that

we aspire to achieve over the life of the Plan, based on the successful execution of our various initiatives.

Financial aspirations	2005–2009 Strategic Plan	2005–2006 performance	2006 performance	2006 adjusted[1]
Same store sales (see note below) (simple average of annual percentage growth, CTR stores only)	3% to 4%	3.4%	3.4%	3.4%
Gross operating revenue[2] (compound annual growth rate)	7% to 9%	8.1%	7.1%	7.1%
EBITDA[3] and minority interest (compound annual growth rate)	10% to 15%	7.8%	3.6%	6.3%
Basic earnings per share (compound annual growth rate)	12% to 15%	9.9%	7.7%	11.0%
After-tax return on invested capital (annual simple average)	10%	9.6%	9.6%	9.4%

[1]Excludes non-operating items.

[2]Gross operating revenue for 2005 has been restated for the impact of EIC–156 as required by CICA.

[3]Earnings before interest, income taxes, depreciation and amortization. See section 12.0 on non-GAAP measures.

Same store sales Previously, we reported on CTR's comparable store sales growth as part of our overall financial aspirations. We will now report solely on CTR's same store sales growth and accordingly, we have changed our financial aspirations to reflect our new practice. There are three key reasons for the change in reporting: same store sales growth is the metric used by management and most commonly used in the retail industry; and, the same store sales calculation will include the large number of store expansions included in the Concept 20/20 store rollout.

3.3 2007 Strategic Plan Outlook

Canadian Tire will continue to invest in existing growth initiatives with a renewed focus on enhancing productivity. Our growth initiatives for 2007 include:

> continued rollout of approximately 70 CTR Concept 20/20 projects, including the addition of nine stores in new markets. Total retail square feet will increase approximately 10 percent by the end of the year

> addition of eight new PartSource stores and continued acquisitions of regional competitors

> continued expansion of Mark's retail space through approximately 55 projects, including adding 29 new stores to the network, increasing retail square footage by 14 percent

> developing and testing at least one new store format integrating the complete Mark's concept with a larger Canadian Tire store

> addition of nine new Petroleum sites and additional re-branded sites, in line with the interrelated marketing objective to enhance traffic and customer loyalty to CTR and Financial Services credit cards

> further regional expansion of the Gas Advantage MasterCard business and the testing of at least one additional new card product

> continued testing of the new high interest savings accounts, guaranteed investment certificates and residential mortgages in the two pilot regions

In addition, a number of new initiatives will be launched within CTR to enhance the long-term competitiveness and productivity of its operations, including:

> the upgrade and simplification of information technology (IT) infrastructure and applications to reduce IT operating costs and enhance the productivity of Canadian Tire's workforce

> improvements to Associate Dealer ordering and shipping processes to better align the flow of product to CTR stores with customer purchasing patterns, thereby reducing corporate and store inventory levels and operational complexity

> enhancements to automotive parts supply chain capabilities to support the expansion of PartSource and continued growth and efficiencies at CTR

Consolidated quarterly results

($ in millions except per share amounts)	Q4 2006	Q3 2006	Q2 2006	Q1 2006	Q4 2005	Q3 2005	Q2 2005	Q1 2005
Gross operating revenue[1]	**$2,426.1**	**$2,023.3**	**$2,247.6**	**$1,572.1**	$2,304.3	$1,888.6	$2,020.6	$1,508.1
Net earnings	**108.3**	**95.4**	**103.3**	**47.6**	118.2	84.4	92.2	35.3
Basic earnings per share	**1.33**	**1.17**	**1.27**	**0.58**	1.44	1.03	1.13	0.43
Fully diluted earnings per share	**1.32**	**1.16**	**1.25**	**0.58**	1.43	1.02	1.11	0.43

[1]Quarterly gross operating revenue for 2005 has been restated for the impact of EIC–156 as required by CICA. See section 11.3 for additional information.

CTR sales in the fourth quarter were adversely affected by unseasonably warm weather in December in Ontario and Quebec. See section 4.2.1.2 for more information on the factors that affected CTR's retail sales performance.

4.2 BUSINESS SEGMENT PERFORMANCE

4.2.1 Canadian Tire Retail

4.2.1.1 Strategic Plan update and outlook

The following outlines CTR's performance in 2006 in the context of the 2005–2009 Strategic Plan, and provides an outlook for 2007 and for the full Plan period.

Strategic Plan update and outlook

Concept 20/20 store program

Concept 20/20 is the cornerstone of Canadian Tire Retail's current growth agenda. Concept 20/20 stores are experiencing strong first-, second- and third-year sales, caused by increases in customer traffic and average transaction value, thereby providing the potential for a more attractive return on investment than previous store formats.

Concept 20/20 same store sales were very strong in 2006, up 8.0 percent year-over-year. On average, customers spend 40 percent more time in Concept 20/20 stores than in other store formats, demonstrating that the attractive Concept 20/20 store design, product displays and open-plan layout encourage customers to browse the stores, increasing the likelihood of incremental purchases. The strong sales performance of Concept 20/20 led to the decision to accelerate the store rollout in 2006 and 2007.

2006 Performance

Fourth quarter

CTR opened 15 new stores in the quarter, 11 of which are replacement stores and four of which are new to the network. Eleven of the 15 stores opened in the quarter are Concept 20/20–Mark's Work Wearhouse combination stores.

CTR also expanded and retrofitted 18 new-format stores to the Concept 20/20 format.

Full year 2006

CTR completed a total of 73 Concept 20/20 projects in 2006, opening 19 new stores and expanding and retrofitting 54 existing stores to the Concept 20/20 format. Seven of the new Concept 20/20 stores are additions to the network.

At the end of 2006, CTR had 468 stores, including 126 Concept 20/20 stores (20 Concept 20/20 Canadian Tire–Mark's Work Wearhouse combination stores). CTR added approximately 1.3 million retail square feet to the network for a total of 16.2 million retail square feet at the end of the year.

2005–2009 Plan

CTR plans to open approximately 270 Concept 20/20 stores between 2005 and 2009.

2007 Outlook

CTR plans to open approximately 70 new Concept 20/20 stores, adding 1.6 million retail square feet as follows:

> 19 new Concept 20/20 stores, including 10 replacement stores
> 51 expansions and retrofits

9.0 ENTERPRISE RISK MANAGEMENT

To preserve and enhance shareholder value, the Company approaches the management of risk strategically through its Enterprise Risk Management (ERM) framework. Introduced in 2003, the ERM framework sets out principles and tools for identifying, evaluating, prioritizing and managing risk effectively and consistently across the Company.

The intent of introducing our ERM framework was to establish an integrated approach to managing risks to assist in achieving our strategic objectives. Our ERM framework is:

> designed to provide an understanding of risks across the Company, and the potential impacts of risks on every part of the organization;
> cross-functional in its perspective to provide a consistent discipline for managing risk;
> designed to allow for improved capital allocation decisions to optimize risk and reward; and
> designed to incorporate a number of tools for managing risk, including avoidance, mitigation, insurance and acceptance.

Our first steps were to develop a process for identifying our Principal Risks and to carry out an initial risk assessment, which we completed in 2004. We define a Principal Risk (Principal Risks) as one that can have a significant adverse impact on Canadian Tire's performance, reputation and ability to service its customers and has, in the absence of controls, a reasonable possibility of occurring.

Based on our experience since 2004, we are now enhancing the processes and procedures that support the ERM framework, including performance metrics and Board reporting. We are also reviewing and enhancing policies relating to the management of our Principal Risks.

The officer in charge of each business and support unit is accountable for ensuring that risks are managed effectively within his or her business area.

A management Enterprise Risk Committee was formed in 2006 to enhance the sustainability of the ERM framework. The Enterprise Risk Committee was created to oversee the management of Principal Risks and other enterprise-wide risks under the leadership of the Chief Executive Officer (CEO) and has the responsibility for reviewing and approving the recommendation to the Board of Directors, the ERM policy and framework.

The Company's Internal Audit Services (IAS) division also supports the Company's overall risk management program. The primary role of IAS is to assist the Audit Committee and the Social Responsibility and Risk Governance Committee (SRRG) in the discharge of their responsibilities relating to risk and uncertainty, financial controls and control deviations, compliance with laws and regulations and compliance with the Company's Code of Business Conduct for Employees and Directors. To this end, IAS is responsible for conducting independent assessments of the effectiveness of risk management and control processes across the Company.

9.1 Board Accountability

The mandate of the Board of Directors includes overseeing the development of an ERM process, for which the Board has delegated initial responsibility to the SRRG. The SRRG, and in certain instances the Audit Committee, is responsible for gaining and maintaining reasonable assurance that management:

> appropriately identifies and manages risks;
> develops a policy that accurately sets out our risk philosophy, risk tolerance and the expectations and accountabilities for identifying, assessing, monitoring and managing risk (the ERM Policy);
> fully implements and sustains the ERM process in compliance with the ERM Policy and that the ERM Policy continues to accurately state our risk philosophy and risk tolerance, as well as our expectations and accountabilities for managing risks;
> identifies Principal Risks in a timely manner, including those risks relating to or arising from any weaknesses or threats to our business and our assumptions underlying our Strategic Plan; and
> effectively assesses, monitors and manages Principal Risks in compliance with ERM Policy.

9.2 Principal Risks

Canadian Tire has policies and practices mandated by the Board of Directors to manage the Company's Principal Risks. The following commentary provides a high level perspective on the nature of each identified Principal Risk and describes the main practices that we have in place to mitigate the potential impacts of Principal Risks on our business activities.

9.2.1 Information Management

The integrity, reliability and security of information in all its forms are critical to the Company's daily and strategic operations. Inaccurate, incomplete and unavailable information and/or inappropriate access to information could lead to incorrect financial and/or operational reporting, poor decisions, privacy breaches and/or inappropriate disclosure or leaks of sensitive information.

Information management risk was recently identified as a Principal Risk in its own right, separate from the technology risk described below. Canadian Tire recognizes that information is a critical enterprise asset. Currently, the information management risk is being managed at the individual business unit level through the development of policies and procedures pertaining to security access, system development, change management and problem and incident management. With a view to enhancing and standardizing the controls to manage the information management risk, the Company is developing corporate operating policies which establish minimum standards for the usage, security and appropriate destruction of information. Furthermore, enterprise metrics are being identified to assist in monitoring significant information management risks.

9.2.2 Technology

Technology is critical to Canadian Tire's operations and is a key enabler of the Strategic Plan. Any system inefficiency or failure could negatively affect our performance, reputation and/or our ability to service customers. Monitoring the availability of Canadian Tire's information technology and assessing the efficiency, stability and scalability of our systems is key to managing this risk. Canadian Tire's technology must also be sufficiently current to ensure that we are able to service our customers and that our business units remain competitive in the marketplace.

Numerous controls are in place to manage the technology risk, including system and disaster recovery procedures and monitoring of system availability, capacity and inappropriate external access attempts. Since the beginning of 2003, our Information Technology group has been planning and implementing a simpler technical environment with the appropriate standardized processes to minimize the risks associated with operating on a number of differing technology platforms.

9.2.3 Product Safety

The Company's brand equity and reputation are integrally linked to the safety of its products and services. Unsafe products and services or products that do not meet regulatory requirements could pose a risk to the health and safety of customers, employees, and other members

of the public or to the environment. This risk, should it materialize, could negatively impact the Company's relationship with its customers, or the Canadian Tire, Mark's Work Wearhouse, and PartSource brands, and result in lost sales due to product re-work and recalls.

We are committed to mitigating the risks associated with our products and services. To this end, we employ quality assurance processes that test products for durability, safety and functionality. These processes are periodically reviewed and enhanced. We also analyze product returns, review consumer reports and use the resulting information to include quality provisions in supplier contract negotiations. Further, all of our vendors are required to carry insurance to cover product liability and indemnify us.

9.2.4 Consumer Credit

With a growing portfolio of consumer lending products, our Financial Services business assumes certain risks that include our failure or inability to accurately predict the creditworthiness of our customers. Financial Services manages credit risks to maintain and improve the quality and profitability of its consumer lending portfolio by:

- employing sophisticated credit-scoring models to constantly monitor the creditworthiness of customers;
- using the latest technology to make informed credit decisions for each customer account to limit credit risk exposure;
- adopting technology to improve the effectiveness of the loan collection process; and
- monitoring the macro-economic environment, especially with respect to interest rates, employment levels and income levels.

9.2.5 Competitive

We compete for customers, employees, products and services against international, national and regional retailers (department stores, mass merchandisers, home-improvement stores and warehouses, petroleum retailers and specialty marketers), banks and other financial services institutions which currently operate in one or more of our business segments. Material changes in the strategic direction and positioning or other practices of those competitors could create material competitive risk to the Company.

We actively monitor and analyze competitive activity as part of our strategic planning process, collecting competitive information, identifying material changes in the competitive environment, identifying material competitive risks and developing strategies to mitigate these risks. Each of our businesses has core strengths and initiatives that provide differentiation in the marketplace and enhance our competitive position, reducing our overall competitive risk. The unique strengths and strategies of our businesses are described in more detail in sections 2.0 and 4.2 of this MD&A.

9.2.6 Economic

Shifts in the fundamentals of the economic environment in which we operate—such as economic growth, inflation, exchange rates, levels of taxation and interest rates—could

affect consumer confidence and spending and impact our ability to source products at a competitive cost. We constantly monitor economic developments in the markets where we operate and where we source our products. We use this information in our continuous strategic and operational reviews to adjust our initiatives as economic conditions dictate and to facilitate ongoing innovation in stores, merchandising concepts and products and Financial Services.

9.2.7 Hazards, Disasters and Business Interruptions

Natural disasters, war, or random occurrences or acts could result in a material change to economic and market performance, consumer behaviour and business conditions or operations. We have established emergency response protocols and business continuity plans that are currently being reviewed and enhanced. Our emergency response teams have been trained to respond to situations as they arise. Our business continuity management team monitors business continuity plans to ensure that they are adequately prepared and tested, particularly with respect to our critical processes and systems. We also maintain insurance coverage to offset physical loss and loss of profits to mitigate the financial impact of an unusual event. The recovery under any insurance claim is subject to limitations set by the insurer.

9.2.8 Geopolitical

Changes in the domestic and international political environment could impact the Company's strategic and operational capabilities. The Company's ability to source products and services could be compromised. These risks can arise from domestic and foreign trade agreements, policies, laws and regulations and other political events and could result in significant material losses or damage to our reputation.

The Company mitigates this risk by monitoring the geopolitical environment of the countries in which we do business. When we contemplate a new vendor relationship, we undertake a risk assessment to evaluate the vendor's fit as well as the vendor country's political environment. We monitor for political changes that could impact our ability to remain competitive.

9.2.9 Legislative Compliance

In operating our business, we must comply with a variety of laws and regulations to meet our corporate and social responsibilities and to avoid the risk of financial penalties and/or criminal and civil liability to our officers and directors. Areas of principal risk are environment, health and safety, competition law, privacy, disclosure, insider trading and laws and regulations which govern financial institutions. Failure to comply with applicable regulations could result in sanctions and financial penalties by regulatory bodies that could impact our earnings and reputation. At the corporate level, we have established a Risk Management and Compliance Services Department to provide, among other things, a framework for compliance oversight with laws and regulations applicable to our businesses.

Environment, Health and Safety We are required to comply with various environmental, health and safety (EHS) laws and regulations which govern how the Company must

manage and monitor its EHS activities. Effective and safe management of the EHS aspects of the business mitigates the risk of financial penalties and criminal or civil liability for officers and directors, and at the same time allows the Company to achieve its committed objective of protecting the environment and the healthy and safety of employees, customers, and the communities in which we do business. In order to ensure that we meet our obligations and mitigate EHS risks, we have in place an EHS policy and management system to guide compliance across the enterprise.

We also recognize that a healthy and safe workplace minimizes injuries and other risks employees face in carrying out their duties. A healthy, safe workplace also improves productivity and avoids penalties or other liabilities for our officers and directors. To this end, we have a number of practices in place to ensure a quality workplace, including guidelines for physical and ergonomic workspaces and shared facilities. Our EHS policies and management systems are designed to ensure that appropriate procedures are followed to minimize workplace injuries. We also offer programs which are designed to promote healthy lifestyles. The incidence of workplace injuries is monitored and reports are reviewed by the SRRG on a quarterly basis.

Competition Law The retail operations of CTR, PartSource, Mark's and Petroleum and certain aspects of Financial Services' businesses are required to comply with the federal *Competition Act* which regulates: (a) certain advertising activities such as ordinary price claims and claims concerning the attributes and performance of our products and services, and (b) other practices related to the lessening of competition in the marketplace. Failure to comply with the requirements of the *Competition Act* could lead to substantial civil and criminal liabilities, administrative penalties and damage to the Company's reputation.

The primary manner in which the Company mitigates the risks associated with failure to comply with the *Competition Act* is to provide ongoing, periodic training to personnel involved in marketing and advertising our products and services. The Company also employs legal personnel with expertise in competition law who regularly review the format and content of our various advertising vehicles and provide ongoing advice to our marketing and advertising staff in respect to other competition law matters.

Privacy In accordance with the *Personal Information Protection and Electronic Documents Act* (PIPEDA) and similar provincial legislation, we introduced a set of privacy policies in 2003. These policies address the privacy issues surrounding the collection, use, disclosure and retention of personal information used in our workplace and identify guiding principles for ensuring that our practices protect the privacy and security of all personal information. In order to reinforce the understanding of these policies and promote compliance, a privacy training lesson was developed in 2006 which will be completed by employees in 2007.

Disclosure We are required to comply with securities reporting legislation and accounting standards that are intended to ensure the full, accurate and timely communication of financial and other material information to the public. To ensure that we meet our obligations and mitigate risks associated with either the disclosure of inaccurate or incomplete information or

a failure to disclose required information, we have in place a Disclosure Policy and a management Disclosure Committee to guide compliance:

- The Disclosure Policy sets out our accountabilities, authorized spokespersons and our approach to the identification and dissemination of material information. The policy also defines restrictions on insider trading and the handling of confidential information.
- The Disclosure Committee reviews all financial information prepared for communication to the public to ensure that it meets regulatory requirements. The Committee is also responsible for raising all potentially material issues to the Audit Committee prior to making any disclosure recommendations.
- The CEO, Chief Financial Officer (CFO), Senior Vice-President, Secretary and General Counsel, Chairman of the Board and Chairman of the Audit Committee review all financial disclosures prior to submission to the Audit Committee for the Audit Committee's review and recommendation to the Board.

The Disclosure Policy was reviewed and amended in 2006 in order to reflect recent changes to the Ontario *Securities Act*.

Insider Trading As a publicly traded issuer, Canadian Tire is subject to the insider trading provisions of the securities legislation in each province and territory of Canada. These laws prohibit directors and officers and significant shareholders from trading in the Company's securities when in possession of undisclosed material information about the Company. The legislation also prohibits the Company and its insiders from "tipping" undisclosed material information to third parties except in the necessary course of business. Insiders are required to publicly report any trades in the Company's securities in accordance with the insider trading laws. Failure to abide by the insider trading laws could undermine public confidence in the integrity of the Company's management and its systems of compliance which could, in turn, damage the Company's reputation. Any such failure could also result in fines and imprisonment to the offending individuals.

The Company mitigates the risks of illegal insider trading by adopting a policy on insider trading which requires insiders to comply with the laws applicable thereto. In addition, the policy requires each member of the Board of Directors, senior management and certain other designated employees to pre-clear any trades with the General Counsel of the Company in order to ensure that no trades are made while such individuals possess undisclosed material information during predetermined quarterly blackout periods established pursuant to the policy. The Company also has a robust Disclosure Policy and associated procedures in order to ensure that material information about the Company is properly disclosed to the public in a timely manner.

Financial Services Our Financial Services division relies on its Compliance Department to assist Canadian Tire Bank in meeting all applicable financial services legislative and regulatory requirements.

9.2.10 Accounting, Valuation and Reporting

In any organization, there is a risk of incorrect application of the rules or standards governing accounting. We employ numerous professionally accredited accountants throughout our finance group, and all of our divisional financial officers have a dotted line reporting relationship to our CFO. Senior finance representatives are assigned to all significant projects. Policies are in place to ensure the completeness and accuracy of reported transactions. Key transaction controls are in place, there is a segregation of duties between transaction initiation, processing and cash disbursement, and there is restricted physical access to the Treasury and cash settlements area. Accounting, measurement, valuation and reporting of accounts which involve estimates and/or valuations are reviewed quarterly by the CFO, the external auditor and the Audit Committee. Significant accounting and financial topics and issues are presented to and discussed with the Audit Committee, and a presentation of quarterly scorecards on operational results is made to the Audit Committee and Board of Directors.

9.2.11 Capital

We must maintain sufficient capital to operate our business and absorb the potential impact of unexpected losses. We maintain adequate access to debt markets to meet our funding requirements. Our Treasurer is responsible for the effective management of capital within the target limits approved by the Board. To monitor our adherence to established policies, a Financial Risk Management Report—which sets out targets and performance on debt to capital ratios, liquidity ratios and foreign exchange management—is provided to the Audit Committee on a quarterly basis. Our Financial Risk Management group approves financial risk management policies for recommendation to the Audit Committee and monitors compliance with those policies. The Funding Plan for the Company is prepared by the Treasury department and approved by the Board.

9.2.12 Financial Instruments

The use of derivative products to manage currency, interest rates and equity exposures and the use of other complex financial instruments pose certain risks. To reduce our risk, our Treasury department does not operate as a profit centre. Controls are in place to detect and prevent speculative activity.

It is our policy to identify and manage currency and interest-rate risk proactively and conservatively. To attempt to ensure that any counterparty to our financial transactions has the ability to meet its financial commitments, we deal only with highly rated financial institutions. We also ensure that there is no undue concentration with any single counterparty. Our Treasury department also monitors activity against policy limits and reports to the Financial Risk Management group and Audit Committee.

9.2.13 Effective Management

Lack of effective recruitment programs, succession planning and compensation structures, as well as performance management and development would present risks to our ability to

Management's Discussion and Analysis

implement our strategic initiatives and to attract, motivate and retain talented people. We have well-established recruitment and performance practices that are facilitated and monitored by our Human Resources group.

Our compensation structure emphasizes employee share ownership and profit sharing, and is reviewed regularly to ensure it is competitive with the marketplace. Twice annually, the executive team undertakes a Leadership Review Process to identify high-potential individuals for development and to identify viable successors for all key management positions.

9.2.14 Ethical Business Practices

Any violation of law, breach of corporate policy or unethical behaviour poses significant risk to our reputation, our brand name and our ability to operate. Commitment to ethical business practices is core to our values and is reflected in a number of policies and practices which are reviewed and strengthened on an ongoing basis to ensure that our employees and directors uphold the highest standard of ethical behaviour.

In order to oversee implementation and compliance with the Code of Business Conduct for Employees and Directors (the Code), the Business Conduct Compliance Office (BCCO) was established and became fully operational in 2005. The BCCO is structured so as to provide multiple channels through which individuals can report (confidentially and anonymously) breaches of the Code for investigation and follow-up. The office also provides assistance and support to employees and directors with respect to interpreting the application of the Code. In late 2006, a review of the Code was commenced in order to ensure that we continue to strengthen our commitment to ethical business practices and remain current with recent developments in the field of ethical business management.

In order to ensure that our suppliers and vendors also abide by the same high standards of ethical business conduct, the Supplier Code of Conduct was introduced in 2005.

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Canadian Tire's MD&A seems to fully meet the objectives and requirements of the standard given earlier. Indeed, its disclosures exceed a minimal rehashing of financial statement information and vague gestures to future prospects. The information provided goes well beyond what can be learned from the financial statements themselves. In particular, the discussion is from management's perspective, and contains considerable forward-looking information to assist investors to assess the probabilities of future firm performance.

It is interesting to speculate why some firms go beyond minimal reporting requirements, particularly due to the potential for lawsuits if the forward-looking disclosures are not met. One possibility is that the Canadian reporting environment may be less litigious than others, such as the United States. Another is that by building investor confidence through reducing estimation risk, the firm's cost of capital will be reduced. This is discussed in Chapter 12. Yet another possibility is that a full-disclosure reputation may also affect customer, as well as investor, confidence.

Theory in Practice 4.2

The potentially serious consequences of violating MD&A requirements are illustrated by the case of Kmart Corp., a giant Michigan-based retail chain.

In August 2005, the SEC announced civil charges against the former CEO and CFO of Kmart, including a ban on their serving as officers or directors of public corporations. These charges arose from the summer of 2001, when Kmart acquired excess inventory of approximately $850 million U.S. This created a serious liquidity problem, as Kmart did not have enough cash and bank credit to pay for the overbuy.

To alleviate this liquidity crunch, Kmart decided to delay payments to its suppliers, creating serious concerns in the vendor community. Several major suppliers withheld further shipments. Kmart declared bankruptcy in January 2002, resulting in a $4.5 billion loss to shareholders, a loss of many jobs, and losses of retirement savings.

The SEC charges arose out of claimed fraudulent misstatements in Kmart's 2001 MD&A. For example, there was no disclosure of why approximately $570 million of accounts payable were past due, despite MD&A requirements to discuss short- and long-term liquidity needs, to discuss asset and liability items, and to explain factors that have caused period-to-period variations, as well as discussing important trends and risks that are expected to affect future performance.

Instead, the company blamed the accounts payable increase on glitches in a system update. It also reported, vaguely, that the $440 million increase in inventory (about a 6% increase) was due to "seasonal inventory fluctuations and actions taken to improve overall in-stock position."

4.9 CONCLUSIONS ON EFFICIENT SECURITIES MARKETS

Efficient securities market theory has major implications for financial accounting. One of these is that supplementary information in financial statement notes or elsewhere is just as useful as information in the financial statements proper. Another is that efficiency is defined relative to a stock of publicly known information. Informative financial reporting has a role to play in improving the amount, timing, and accuracy of this stock, thereby enabling capital markets to work better and improve the operation of the economy.

MD&A is an important example of a full disclosure standard. This standard has the potential to convey information beyond that contained in the conventional historical cost-based financial statements. This potential is not only in the information contained in the disclosure per se. The extent to which the firm goes beyond minimal MD&A requirements tells the market something more. Superior disclosure signals a confident, well-planned management approach (otherwise, why release the information?), suggesting that good performance in the face of changing opportunities, risks, and uncertainties will continue.

Full disclosure has two main benefits, which can be attained simultaneously. One is to enable investors to make better decisions. The other is to improve the ability of securities markets to direct investment to its most productive uses. The reason why these

benefits are attained simultaneously, of course, is that better information enables more-informed buy/sell decisions, helping share price to better reflect fundamental firm value. Share price, in turn, affects the firm's investment decisions.

Another implication of efficient securities market theory appears in Beaver's 1973 analysis. This is that the specific accounting policies adopted by firms do not matter as long as they have no differential cash flow effects across those policies, full disclosure is made of the particular policies used, and investors have sufficient information to convert from one policy to another. The reason, according to efficient markets theory, is that investors as a whole will *look through* reported net income to its underlying implications for future cash flows. In so doing, they will take into account the specific accounting policies used in calculating net income. Thus, firms' choices of amortization policy, of successful-efforts or full-cost accounting for oil and gas exploration, and so on, will not affect the efficient market prices of their securities, providing the specific accounting policies they are using are fully disclosed. Thus, we see that the full-disclosure principle extends to disclosure of accounting policies.

Accountants are improving their understanding of the role of information in determining price. In essence, market price aggregates the collective information processing and decision-making expertise of investors. Thus, market price itself has considerable information content, which individuals may use as input into their decisions. A "buy and hold" investment strategy is an example of a decision that relies on the information content of market price.

This aggregation of information into market price contains a logical contradiction, however. If price is fully informative, no one would bother to collect additional, costly, information. In effect, market price contains within it the seeds of its own destruction. However, we can identify two factors to prevent this from happening:

- Noise and liquidity traders introduce a random component to market price, which prevents market price from being fully informative about future value.
- Information asymmetry, in particular the presence of inside information, means that not all relevant information is in the public domain. Then, investors have the potential to earn extra profits if they can ferret out some of this inside information. Improved disclosure, as in MD&A, provides investors with some help in this regard.

As Beaver (1973) put it, accountants are in competition with other information sources. We now know that market price is one of these other sources. Think of market price as aggregating all relevant "other" information up to the time of release of the financial statements. The question then is: Is it cost effective for rational investors to inform themselves by utilizing the financial statements?

Again, the accountants' answer is the concept of full disclosure. By increasing the information content of financial reporting, including supplementary information in notes and MD&A, not only do accountants help preserve their competitive advantage, they also improve social welfare by reducing the adverse impacts of inside information.

If investors do in fact find accounting information useful, this should show up as a response of security prices to this information. In the next chapter, we will examine empirical evidence in this regard.

Questions and Problems

1. Two firms, of the same size and risk, release their annual reports on the same day. It turns out that they each report the same amount of net income. Following the release, the share price of one firm rose strongly while the other rose hardly at all.

   Explain how it is possible for the market to react positively to one firm's annual report and hardly at all to the other when the firms are similar in size, risk, and reported profitability.

2. Shares of firm A and firm B are traded on an efficient market. The two firms are of the same size and risk. They both report the same net income. However, you see in the financial statement notes that firm A uses the LIFO inventory method and declining-balance amortization for capital assets, while firm B uses the FIFO inventory method and straight-line amortization.

   Which firm's shares should sell at the higher price-to-earnings ratio, all other things being equal? Explain. Assume a period of rising prices. (CGA-Canada)

3. Using the concept of information asymmetry, answer the following questions:

   a. You observe that used cars sold by new car dealers sell for a higher price, for models of same make, year, and condition, than used cars sold by used car dealers. Why?

   b. Why would a fire insurance policy contain a $150 deductible provision?

   c. Why would a life insurance company require a medical examination before approving applications for new policies?

   d. A firm plans to raise additional capital by means of a new issue of common shares. Before doing so, it hires a well-known investment house to help design and market the issue, and also switches auditors from a small, local firm to a "Big Four" firm. Why? (CGA-Canada)

4. To what extent might the financial press provide a relevant source of information for investors? Would this information source conflict with or complement financial statement information? Explain.

5. On January 21, 1993, *The Wall Street Journal* reported that General Electric Co.'s fourth-quarter 1992 earnings rose 6.2% to $1.34 billion or $1.57 a share, setting a new record and bringing the earnings for 1992 to $4.73 billion or $5.51 a share. After adjusting for extraordinary items, 1992 earnings from continuing operations were up about 10% from the previous year.

   The *Journal* also reported that forecasts made by analysts averaged $1.61 per share for the fourth quarter of 1992, and from $5.50 to $5.60 per share for the whole year. One analyst was quoted as saying that 1992 "wasn't a bad year for GE" despite the downturn in the stock market on the day of the earnings announcement.

   Yet, on the same day the fourth-quarter earnings were announced, General Electric Co.'s stock price fell $1.50 to $82.625 on the New York Stock Exchange.

Required

a. Give three reasons to explain why this could happen.

b. Use the Sharpe-Lintner CAPM (Equations 4.2 and 4.3) to explain how the new information caused the current price slip. Calculations are not required.

6. On February 27, 2007, Laurentian Bank of Canada released results for its first quarter, ending on January 31, 2007. It reported profit of 74 cents per share (70 cents per share before a non-recurring gain). Analysts' estimates of profit for the quarter were 65 cents per share. For the same quarter of the previous year, profit was 59 cents per share. Total revenue increased 6%. The bank announced a quarterly dividend of 29 cents per share, unchanged from the two previous quarters. The CFO of Laurentian stated that its loan exposure to struggling forestry and manufacturing firms was better, although there was still room for improvement.

Laurentian's shares are traded on the S&P TSX exchange. The TSX index rose 5 points on February 27, closing at 13,040.11. Laurentian's share price fell 34 cents for the day, to $30.71.

Required

Why did Laurentian's share price fall? Assume efficient securities markets, and consider both economy-wide and firm-specific factors in your answer.

7. Atlas Ltd. is a listed public company. It is in a volatile industry. The market price of its shares is highly sensitive to its earnings. The company's annual meeting is to be held soon, and the president is concerned, expecting to be attacked strongly by a dissident group of shareholders.

One issue the dissidents are expected to focus on is the company's amortization policy. They will claim that the annual declining-balance amortization charges are excessive—that the company's conservative amortization policy seriously understates annual earnings per share, causing the shares' market price to be artificially low. Threats have even been made of suing management and the board of directors to "recover the resulting loss in market value, relative to shareholders in companies with less conservative amortization policies, suffered by Atlas shareholders."

The president has asked you to help prepare a defence against the expected attack on the company's amortization policy.

Required

Write a memo summarizing how you would recommend the president respond to this attack. (CGA-Canada)

8. The article "GM to Take Charge of $20.8-Billion" here reproduced from *The Globe and Mail* (February 2, 1993) describes the potential impact of SFAS 106, "Accounting for Postretirement Benefits Other Than Pensions," on General Motors and Ford. For example, it appears that General Motors will be required to record a liability of $20.8 billion, reducing its shareholders' equity from $27.8 billion to $7 billion, about a 75% reduction.

GM to Take Charge of $20.8-Billion

Atlanta—General Motors Corp. will take a $20.8-billion (U.S.) charge against 1992 earnings to account for a new way of estimating retiree health care costs, the auto maker's directors decided yesterday.

The charge, which will not affect the struggling auto maker's cash flow, will leave GM with the largest annual loss of any U.S. corporation, eclipsing the company's 1991 loss of $4.45-billion, which was a record at that time.

Including accounting changes, other charges and losses on its North American operations, GM's 1992 loss could approach $23-billion.

The $20.8-billion is a non-cash charge. It reduces GM's net worth to about $7-billion, still sufficient to pay stock dividends under the laws of Delaware, where GM is incorporated.

Separately, GM said it would take a $744-million fourth-quarter restructuring charge for its National Car Rental Systems business. In a recent U.S. Securities and Exchange Commission filing, GM estimated that charge at about $300-million.

The accounting change, required by the Financial Accounting Standards Board of all publicly traded U.S. companies, has had a major effect on each of the Big Three U.S. auto makers.

Ford Motor Co. said it would take a $7.5-billion charge against 1992 earnings to account for the change. Chrysler Corp. said it has not decided whether to take its $4.7-billion charge as a lump sum in the first quarter or spread it over 20 years, as the standard allows.

GM had estimated its charge for adopting the new accounting standard at $16-billion to $24-billion. The $20.8-billion actual charge includes its workers, GM Hughes Electronics Corp. and its financial subsidiary, General Motors Acceptance Corp.

The company's EDS Corp. subsidiary does not pay health benefits, so it was exempt.

Source: *The Globe and Mail*, February 2, 1993. Reprinted by permission of The Associated Press.

Required

Describe and explain how you would expect the efficient securities market to react to this information.

9. You have just obtained inside information about a firm that employs you and in which you own shares. The information is that the current quarter's earnings will be substantially below forecast. Should you sell your shares before the bad news becomes publicly known? Outline arguments for and against this temptation.

10. A major reason for the rarity of formal financial forecasts in annual reports is the possibility of lawsuits if the forecast is not met, particularly in the United States. On November 17, 1995, *The Wall Street Journal* reported that the SEC was supporting a bill before the U.S. Senate to provide protection from legal liability resulting from forecasts, providing that "meaningful cautionary statements" accompanied the forecast.

Required

a. To the extent that firms are discouraged from providing financial forecasts by the prospect of litigation, how could this lead to a negative impact on the working of

securities markets? Can you give an argument that a litigious environment might actually improve the working of securities markets?

b. Explain how the passage of a bill such as that mentioned above might benefit investors.

c. Explain how passage might benefit firms.

11. Refer to Theory in Practice 4.1 in Section 4.2.2.

Required

a. Use efficient securities market theory to explain how "dart-throwing" may be a desirable investment strategy.

b. Explain Prof. Malkiel's argument that risk differences may be driving the superior average returns earned by the pros and the Dow Jones index. How would you determine whether risk differences were affecting the results?

c. Explain another possible reason, not mentioned by Prof. Malkiel, for the superior returns earned by the pros.

12. For companies with no history of positive earnings, such as startup companies, growth of revenues provides an alternative performance measure and indicator of possible future earning power. This is particularly the case if the new company incurs high R&D costs, advertising, and other startup expenditures that delay the advent of reported earnings. Without reported earnings, such companies may inflate reported revenues to impress investors. In an article in *The Globe and Mail*, December 30, 2000, Janet McFarland discusses some of these practices. They include:

- Recognizing full revenue even though products or systems can be returned, or when there are future obligations such as servicing the products and systems sold.
- Recording revenue on long-term contracts in advance of billings to the customer (billings may be delayed as a form of vendor financing to the customer, a practice frequently used to attract business from cash-short firms).
- Recording revenue from gross sales when the company is an agent rather than a principal.

Examples of such practices include Imax Corp., which reported the (discounted) full amounts of minimum royalties due under 10-year or more leases of its theatre systems (in accordance with GAAP for long-term leases), leaving itself open to the possibility that customers may default on payments due in future. JetForm Corp. recognized revenue from consulting contracts on the percentage-of-completion method, although amounts billed to customers were less. Bid.Com, a firm that conducted on-line auctions as agent for the seller, included the purchase price, rather than its commission on the purchase, as revenue.

One of the problems surrounding reporting of revenue is that while a firm's revenue recognition policy must be disclosed, the disclosure standards are vague. Thus companies typically state that revenue is recognized as goods are shipped or services rendered, or that revenues on long-term contracts are recognized on a percentage-of-completion basis. These statements are sufficiently general that practices such as the above may be unknown to the market.

Required

a. To what extent can revenue growth substitute for net income as a predictor of future earning power? Explain. Use efficient securities market concepts in your answer, and consider the requirement under GAAP for immediate writeoff of research and startup costs.

b. Use the concept of relevance to defend the revenue recognition policies outlined above.

c. Use the concept of reliability to criticize the revenue recognition policies outlined above.

d. To the extent that investors are aware of the possible use of revenue recognition policies that overstate revenues (even though, for a specific firm, they may not know the extent to which that firm is using such policies), what is the effect on the operation of the capital market? Explain.

13. Zhang (2005) examined revenue recognition practices in the software industry. Software firms derive revenue from software licensing and post-contract customer support. In both cases, the point in time when significant risks and rewards of ownership are transferred to the buyer and amounts to be received can be reliably measured are unclear. Consequently, there is scope for alternative revenue recognition practices in the industry.

With respect to licensing, one alternative is to recognize revenue when the licensing contract is signed (early recognition). Another is to wait until the software is delivered to the customer, consistent with the usual sale basis of revenue recognition (late recognition). With respect to post-contract customer support, alternatives are to recognize revenue when contracts are signed (early recognition) or recognize revenue ratably over the term of the contract (late recognition).

Zhang examined a sample of 122 firms over 1987–1997, of which 22 firms were early recognizers and 93 late. He measured the relevance of a firm's quarterly revenue by its association with its share returns for the quarter. Given securities market efficiency, revenues of early recognizers should be more highly associated with their share returns than revenues of late recognizers. Zhang reported significant statistical evidence consistent with this expectation.

Zhang measured the reliability of revenue information by examining the cash flows from quarter-end accounts receivable collected over the following two quarters. Recall that in Section 3.8 we pointed out the role of accruals in anticipating future cash flows. Thus, the closer are the amounts of cash collections over these following two quarters to opening net accounts receivable, the more reliable the revenue information. Zhang found that the reliability of revenue information measured this way was significantly less for early recognizers than for late recognizers.

Combination of these two findings suggests that relevance and reliability must be traded off, since the greater relevance of early revenue recognition is accompanied by reduced reliability.

Required

a. Explain why securities market efficiency implies that revenues of early recognizers should be more highly associated with their share returns than revenues of late recognizers. In your answer, assume that information about licensing contracts becomes public information when the contract is signed.

b. Explain why the closer are cash collections for the following two quarters to opening accounts receivable, the more reliable is revenue information.

c. Do Zhang's findings imply that early revenue recognition for licensing contracts has the potential to be decision useful for investors? Use the concept of an information system (in particular, the effects of relevance and reliability on the main diagonal probabilities) in your answer.

14. What implications does estimation risk have for the working of securities markets, and for social welfare, in a capitalist economy? Explain how estimation risk can be reduced in our economy. Can estimation risk be eliminated?

Notes

1. More generally, the random fluctuation could be about a trend line. For example, the price of a security may have an upward trend over time.
2. This phenomenon, that the collective judgements of a large group can be surprisingly accurate, has been documented in numerous contexts. Surowiecki (2004) gives four conditions needed for the effect to operate: diversity of information, independence, decentralization, and aggregation.
3. In Section 3.3.2, we applied the term "informative" to the information system. An informative information system leads the decision-maker to revise his/her prior probabilities. In that context, a *fully* informative information system perfectly reveals the state of nature (see question 1 of Chapter 3). In the context of this chapter, "fully informative" applies to share price rather than to an information system, but the reasoning is similar—current share price fully reflects or, equivalently, perfectly reveals all publicly available information. Note that if share price is fully informative, the information system formed by financial statements is non-informative—it reveals nothing new about the firm since share price already reveals all. Hence the logical inconsistency—if share prices are fully informative, no one would use financial statements. But, if no one used financial statements, share prices would no longer be fully informative.
4. This abnormal return should not be confused with abnormal earnings like those of P.V. Ltd. in Example 2.2. While the idea of differing from expectations is the same, abnormal security return here refers to a *market* return, whereas abnormal earnings refer to *accounting* net income.
5. Estimating beta by least-squares regression is not inconsistent with the calculation of beta described in Section 3.7.1. The regression approach merely provides a convenient framework to carry out the estimation. To see this, note the definition of the coefficient of an independent variable in a regression model—it is the amount of change in the dependent variable (R_{it}) for a unit change in the independent variable (R_{Mt}). This is exactly the definition of beta. As explained in Section 3.7.1, beta measures the strength of the variation in a security's return as the market return varies.
6. This view of market efficiency differs from many economic analyses, where the outside circle, which we call fundamental value, is regarded as the efficient market price, and the inside circle represents a less-than-efficient market price. In such analyses, the role of financial reporting is to improve market efficiency. We use a "two-stage" view of market efficiency because it is consistent with the definition of semi-strong efficiency given in Section 4.2.1, where efficiency is *relative* to a stock of information. This enables us to emphasize the role of financial reporting in improving the stock of information, thereby reducing adverse selection and estimation risk and improving social welfare.
7. Wurgler estimates a country's efficiency of capital allocation by the relationship between its growth in investment and its growth in output—more output from a unit of growth in investment implies higher capital allocation efficiency. He estimates the amount of firm-specific information in a country's share prices by their **synchronicity** (the extent to which share prices move together)—less synchronicity or, equivalently, less co-movement between share prices, implies more firm-specific information relative to industry- and economy-wide information. In obtaining his result, Wurgler controls for shareholder minority rights and extent of state ownership in the economy, which also affect capital allocation efficiency.