

financial accounting theory

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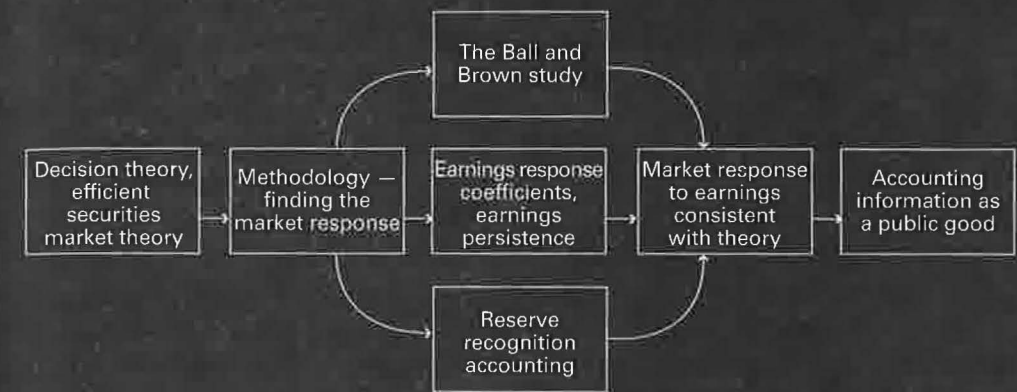


Toronto

Chapter 5

The Information Approach to Decision Usefulness

Figure 5.1 Organization of Chapter 5



5.1 OVERVIEW

There is a saying that “the proof of the pudding is in the eating.” If the efficient markets theory and the decision theories underlying it are reasonable descriptions of reality on average, we should observe the market values of securities responding in predictable ways to new information.

This leads to an examination of empirical research in accounting. Despite the difficulties of designing experiments to test the implications of decision usefulness, accounting research has established that security market prices do respond to accounting information. The first solid evidence of this security market reaction to earnings announcements was provided by Ball and Brown in 1968. Since then, a large number of empirical studies have documented additional aspects of securities market response.

On the basis of these studies, it does seem that accounting information is useful to investors in helping them estimate the expected values and risks of security returns. One has only to contemplate the use of Bayes' theorem in Example 3.1 to see that if accounting information did not have information content there would be no revision of beliefs upon receipt, hence no triggering of buy/sell decisions. Without buy/sell decisions, there would be no trading volume or price changes. In essence, information is useful if it leads investors to change their beliefs and actions. Furthermore, the degree of usefulness for investors can be measured by the extent of volume or price change following release of the information.

This equating of usefulness to information content is called the information approach to decision usefulness of financial reporting, an approach that has dominated financial accounting theory and research since 1968, and has only within the last few years yielded to a measurement approach, to be discussed in Chapters 6 and 7. As we have seen in Sections 3.8 and 4.8, the information approach has been adopted by major accounting standard-setting bodies. This approach takes the view that investors want to make their own predictions of future security returns (instead of having accountants do it for them, as under ideal conditions) and will "gobble up" all useful information in this regard. As mentioned, empirical research has shown that at least some accounting information is perceived as useful. Furthermore, the information approach implies that empirical research can help accountants to further increase usefulness by letting market response guide them as to what information is and is not valued by investors.

The information approach to decision usefulness is an approach to financial reporting that recognizes individual responsibility for predicting future firm performance and that concentrates on providing useful information for this purpose. The approach assumes securities market efficiency, recognizing that the market will react to useful information from any source, including financial statements.

One must be careful, however, when equating usefulness with the extent of security price change. While investors, and accountants, may benefit from useful information, it does not follow that society will necessarily be better off. Information is a very complex commodity and its private and social values are not the same. One reason is cost. Financial statement users do not generally pay directly for this information. As a result, they may find information useful even though it costs society more (e.g., in the form of higher product prices to help firms pay for generating and reporting the information) than the increased usefulness is worth. Furthermore, information affects people differently, requiring complex cost-benefit tradeoffs to balance the competing interests of different constituencies.

These social considerations do not invalidate the information approach. Accountants can still strive to improve their competitive position in the information marketplace by providing useful information. And, it is still true that securities markets will work better to allocate scarce capital if security prices provide good indicators of investment opportunities. However, what accountants cannot do is claim that the best accounting policy is the one that produces the greatest market response.

Figure 5.1 outlines the organization of this chapter.

5.2 OUTLINE OF THE RESEARCH PROBLEM

5.2.1 Reasons for Market Response

We begin by reviewing the reasons why we would predict that the market price of a firm's shares will respond to its financial statement information. For most of this chapter we will confine financial statement information to reported net income. The information content of net income is a topic that has received extensive empirical investigation. Information content of other financial statement components will be discussed in Section 5.7 and in Chapter 7.

Consider the following predictions about investor behaviour, in response to financial statement information:

1. Investors have prior beliefs about a firm's future performance, that is, its dividends, cash flows, and/or earnings, which affect the expected returns and risk of the firm's shares. These prior beliefs will be based on all available information, including market price, up to just prior to the release of the firm's current net income. Even if they are based on publicly available information, these prior beliefs need not all be the same, because investors will differ in the amount of information they have obtained and in their abilities to interpret it.
2. Upon release of current year's net income, certain investors will decide to become more informed by analyzing the income number. For example, if net income is high, or higher than expected, this may be good news. If so, investors, by means of Bayes' theorem, would revise upward their beliefs about future firm performance. Other investors, who perhaps had overly high expectations for what current net income should be, might interpret the same net income number as bad news.
3. Investors who have revised their beliefs about future firm performance upward will be inclined to buy the firm's shares at their current market price, and vice versa for those who have revised their beliefs downward. Investors' evaluations of the riskiness of these shares may also be revised.
4. We would expect to observe the volume of shares traded to increase when the firm reports its net income. Furthermore, this volume should be greater the greater are the differences in investors' prior beliefs and in their interpretations of the current financial information. If the investors who interpret reported net income as good news (and hence have increased their expectations of future performance) outweigh those who interpret it as bad news, we would expect to observe an increase in the market price of the firm's shares, and vice versa.

Beaver (1968), in a classic study, examined trading volume reaction. He found a dramatic increase in volume during the week of release of earnings announcements. Further details of Beaver's findings are included in question 9 of this chapter. In the balance of this chapter we will concentrate on market price reaction. Market price reaction may provide a stronger test of decision usefulness than volume reaction. For example, the

model of Kim and Verrecchia (1997) suggests that volume is noisier than price change as a measure of decision usefulness of financial statement information.

You will recognize that the preceding predictions follow the decision theory and efficient markets theory of Chapters 3 and 4 quite closely. If these theories are to have relevance to accountants, their predictions should be borne out empirically. An empirical researcher could test these predictions by obtaining a sample of firms that issue annual reports and investigating whether the volume and price reactions to good or bad news in earnings occur as the theories lead us to believe. This is not as easy as it might seem, however, for a number of reasons, as we will discuss next.

5.2.2 Finding the Market Response

1. Efficient markets theory implies that the market will react quickly to new information. As a result, it is important to know *when* current year's reported net income first became publicly known. If the researcher looked for volume and price effects even a few days too late, no effects may be observed even though they had existed.

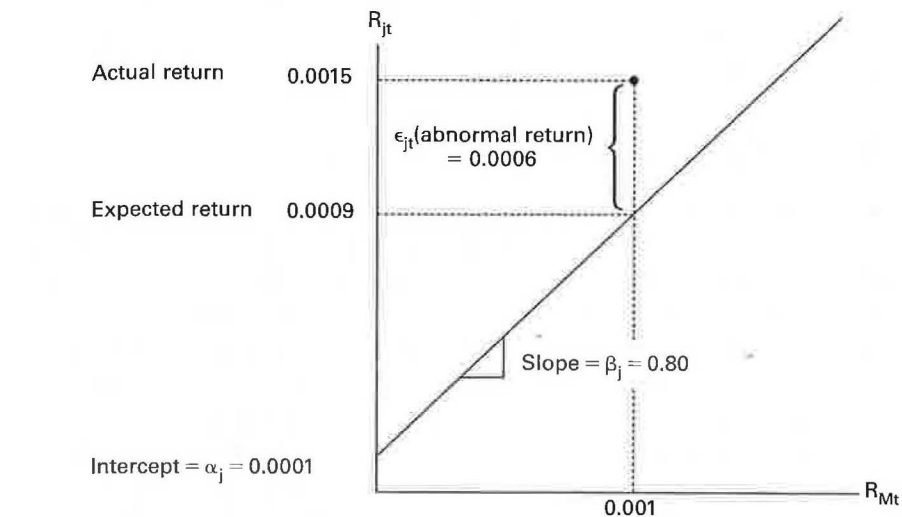
Researchers have solved this problem by using the date the firm's net income was reported in the financial media such as *The Wall Street Journal*. If the efficient market is going to react, it should do so in a **narrow window** of a few days surrounding this date.

2. The good or bad news in reported net income is usually evaluated relative to what investors *expected*. If a firm reported net income of, say, \$2 million, and this was what investors had expected (from quarterly reports, speeches by company officials, analysts' predictions, forward-looking information in MD&A and, indeed, in share price itself), there would hardly be much information content in reported net income. Investors would have already revised their beliefs on the basis of the earlier information. Things would be different, however, if investors had expected \$2 million and reported net income was \$3 million. This good news would trigger rapid belief revision about the future performance of the firm. This means that researchers must obtain a proxy for what investors expected net income to be.
3. There are always many events taking place that affect a firm's share volume and price. This means that a market response to reported net income can be hard to find. For example, suppose a firm released its current year's net income, containing good news, on the same day the federal government first announced a substantial decrease in the surplus. Such a public announcement would probably affect prices of all or most securities on the market, which in turn might swamp the price impact of the firm's earnings release. Thus, it is desirable to separate the impacts of market-wide and firm-specific factors on share returns.

5.2.3 Separating Market-Wide and Firm-Specific Factors

As described in Section 4.5, the market model is widely used to *ex post* separate market-wide and firm-specific factors that affect security returns. Figure 5.2 gives a graphical illus-

Figure 5.2 Separating Market-Wide and Firm-Specific Security Returns Using the Market Model



R_{Mt} = Return on market portfolio for period t

R_{jt} = Return on firm j 's shares for period t

tration of the market model for firm j for period t , where we take the length of the period as one day. Longer time periods, such as a week, month, or year, and even shorter periods, are also used by researchers.

The figure shows the relationship between the return on firm j 's shares and the return on the market portfolio (proxied, for example, by the Dow Jones Industrial Average index or the S&P/TSX Composite index).

Consider the equation of the market model, repeated here from Section 4.5 (Equation 4.4):

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

As described in Section 4.5, the researcher will obtain past data on R_{jt} and R_{Mt} and use regression analysis to estimate the coefficients of the model. Suppose that this yields $\alpha_j = 0.0001$ and $\beta_j = 0.80$, as shown in the figure.¹

Now, armed with this estimate of the market model for firm j , the researcher can consult *The Wall Street Journal* to find the day of the firm's current earnings announcement. Call this day "day 0." Suppose that for day 0 the return on the Dow Jones Industrial index was 0.001.² Then, the estimated market model for firm j is used to predict the return on firm j 's shares for this day. As shown in Figure 5.2, this expected return³ is 0.0009. Now assume that the *actual* return on firm j 's shares for day 0 is 0.0015. Then, the difference between actual and expected returns is 0.0006 (that is, $\epsilon_{jt} = 0.0006$ for this day). This 0.0006 is an estimate of the abnormal, or firm-specific, return on firm j 's shares for that

day.⁴ This abnormal return is also interpreted as the rate of return on firm *j*'s shares for day 0 *after removing* the influence of market-wide factors. Note that this interpretation is consistent with Example 3.3, where we separated the factors that affect share returns into market-wide and firm-specific categories. The present procedure provides an operational way to make this separation.

5.2.4 Comparing Returns and Income

The empirical researcher can now compare the abnormal share return on day 0 as calculated above with the unexpected component of the firm's current reported net income. If this unexpected net income is good news (that is, a positive unexpected net income) then, given securities market efficiency, a positive abnormal share return constitutes evidence that investors on average are reacting favourably to the unexpected good news in earnings. A similar line of reasoning applies if the current earnings announcement is bad news.

To increase the power of the investigation, the researcher may wish to also examine a few days on either side of day 0. It is possible, for example, that the efficient market might learn of the good or bad earnings news a day or two early. Conversely, positive or negative abnormal returns may continue for a day or two after day 0 while the market digests the information, although market efficiency implies that any excess returns should die out quickly. Consequently, the summing of abnormal returns for a three-to-five-day narrow window around day 0 seems more reasonable than examining day 0 only. It also helps protect against the possibility that the date of publication of current earnings in the financial media may not be a completely accurate estimate of the date of their public availability.

If positive and negative abnormal returns surrounding good or bad earnings news are found to hold across a sample of firms, the researcher may conclude that predictions based on the decision theory and efficient securities market theory are supported. This would in turn support the decision usefulness approach to financial accounting and reporting, because, if investors did not find the reported net income information useful, a market response would hardly be observed.

Of course, this methodology is not foolproof—a number of assumptions and estimations have to be made along the way. One complication is that other firm-specific information frequently comes along around the time of a firm's earnings announcement. For example, if firm *j* announced a stock split or a change in its dividend on the same day that it released its current earnings, it would be hard to know if a market response was due to one or the other. However, researchers can cope with this by simply removing such firms from the sample.

Another complication is the estimation of a firm's beta, needed to separate market-wide and firm-specific returns as in Figure 5.2. As mentioned, this estimation is usually based on a regression analysis of past data using the market model. Then, the estimated beta is the slope of the regression line. However, as we will discuss in Section 6.2.3, a firm's beta may change over time, for example as the firm changes its operations and/or

its capital structure. If the estimated beta is different from the true beta, this affects the calculation of abnormal return, possibly biasing the results of the investigation.

There is a variety of ways to cope with this complication. For example, it may be possible to get a "second opinion" on beta by estimating it from financial statement information rather than from market data. (This is considered in Section 7.5.1.) Alternatively, beta may be estimated from a period after the earnings announcement and compared with the estimate from a period before the announcement.

Also, there are ways to separate market-wide and firm-specific returns that ignore beta. For example, we can estimate firm-specific returns by the difference between firm *j*'s stock return during period 0 and the average return on its shares over some prior period. Or, we can take the difference between firm *j*'s return during period 0 and the return on the market portfolio for the same period. Alternatively, as in Easton and Harris (1991), we can simply work with total share returns and not factor out market-wide returns at all.

The rationale for these simpler procedures is that there is no guarantee that the market model adequately captures the real process generating share returns—the impact of estimation risk on the CAPM was discussed in Chapter 4. To the extent that the market model does not fully capture reality, its use may introduce more error in estimating beta and abnormal returns than it reduces by removing market-wide returns and controlling for risk. A further complication is that there is a variety of market portfolio return indices available, of which the Dow Jones Industrial Average is only one. Which one should be used?

These issues were examined by Brown and Warner (1980) in a simulation study. Despite modelling and measurement problems such as those just mentioned, Brown and Warner concluded that, for monthly return windows, the market model-based procedure outlined in Section 5.2.3 performed reasonably well relative to the above alternatives. Consequently, this is the procedure we will concentrate on.

Using this procedure, it does appear that the market reacts to earnings information much as the theories predict. We will now review the first solid evidence of this reaction, the famous 1968 Ball and Brown study.

5.3 THE BALL AND BROWN STUDY

5.3.1 Methodology and Findings

In 1968, Ball and Brown (BB) began a tradition of empirical capital markets research in accounting that continues to this day. They were the first to provide convincing scientific evidence that firms' share returns respond to the information content of financial statements. This type of research is called an **event study**, since it studies the securities market reaction to a specific event, in this case a firm's release of its current net income. A review of the BB paper is worthwhile because its basic methodology, and adaptations and extensions of it, are still used. Their paper continues to provide guidance, as well as encouragement, to those who wish to better understand the decision usefulness of financial reporting.

BB examined a sample of 261 New York Stock Exchange (NYSE) firms over nine years from 1957 to 1965. They concentrated on the **information content of earnings**, to the exclusion of other potentially informative financial statement components such as liquidity and capital structure. One reason for this, as mentioned earlier, was that earnings for NYSE firms were typically announced in the media prior to actual release of the annual report so that it was relatively easy to determine when the information first became publicly available.

BB's first task was to measure the information content of earnings, that is, whether reported earnings were greater than what the market had expected (GN), or less than expected (BN). Of course, this requires a proxy for the market's expectation. One proxy they used was last year's actual earnings, from which it follows that unexpected earnings is simply the change in earnings.⁵ Thus, firms with earnings higher than last year's were classified as GN, and firms with earnings lower than last year's were classified as BN.

The next task was to evaluate the market return on the shares of the sample firms near the time of each earnings announcement. This was done according to the abnormal returns procedure illustrated in Figure 5.2. The only difference was that BB used monthly returns (daily returns were not available on databases in 1968).

Analogously to Figure 5.2, suppose that firm j reported its 1957 earnings in February 1958, and that these earnings were GN. Suppose also that the return on the NYSE market portfolio in February 1958 was 0.001, yielding an expected firm j return of 0.0009. BB would then calculate the actual return on firm j shares for February 1958. Suppose this was 0.0015, yielding an abnormal return for February of 0.0006. Since firm j's 1957 earnings were reported in February 1958 and since its shares earned 0.0006 over and above the market in this month, one might suspect that the reason for the positive abnormal return was that investors were reacting favourably to the GN information in earnings.

The question then was: Was this pattern repeated across the sample? The answer was yes. If we take all the GN earnings announcements in the sample (there were 1,231), the average abnormal security market return in the month of earnings release was strongly positive. Conversely, the average abnormal return for the 1,109 bad news earnings announcements in the sample was strongly negative. This provides substantial evidence that the market did respond to the good or bad news in earnings during a narrow window consisting of the month of earnings announcement release.

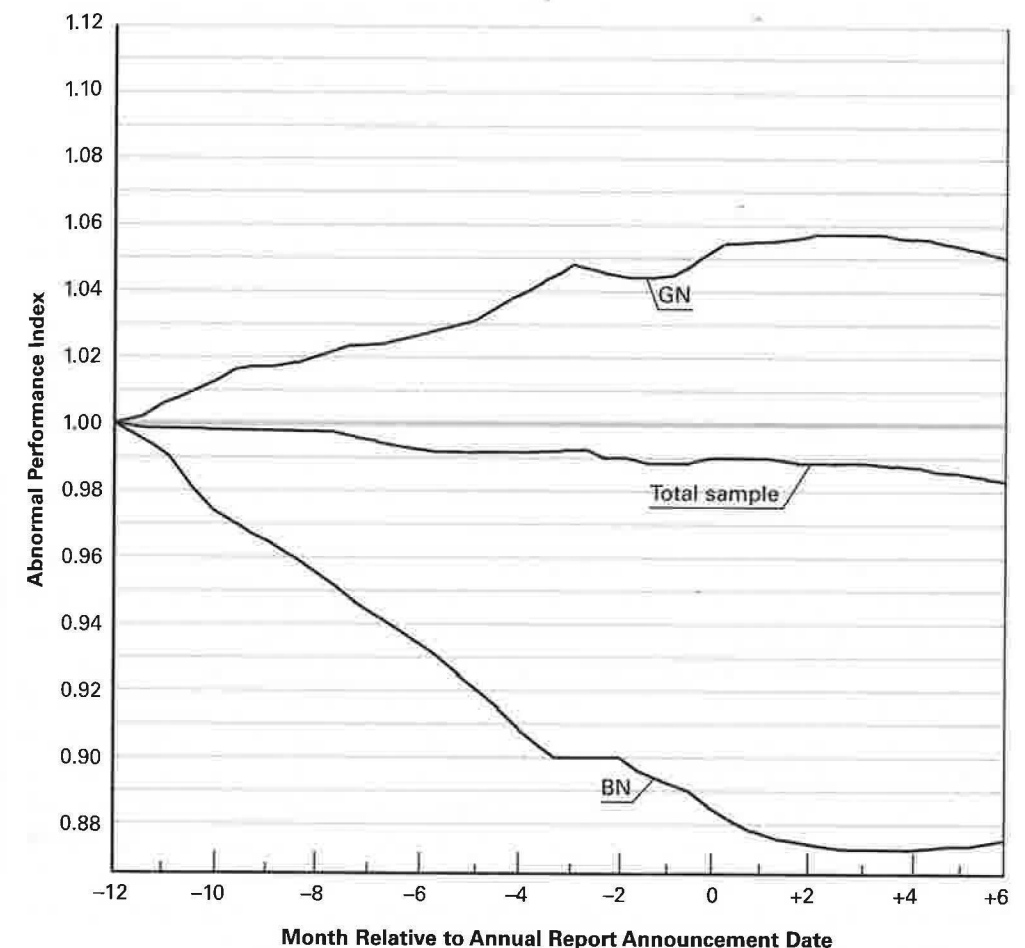
An interesting and important aspect of the BB study was that they repeated their abnormal security market returns calculation for a **wide window** consisting of each of the 11 months prior to and the six months following the month of earnings release (month 0). BB calculated average abnormal returns for each month of this 18-month window. The results are shown in Figure 5.3, taken from BB.

The upper part of Figure 5.3 shows cumulative average abnormal returns for the GN earnings announcement firms in the sample; the bottom part shows the same for the BN announcement firms. As can be seen, the GN firms strongly outperformed the total sample (which approximates the market-wide return), and the BN firms strongly underperformed, over the 11-month period leading up to the month of earnings release.

5.3.2 Causation Versus Association

Note that the returns are *cumulative* in the diagram. While there was a substantial increase (for GN) and decrease (for BN) in average abnormal returns in the narrow window consisting of month 0, as described above, Figure 5.3 suggests that the market began to anticipate the GN or BN as much as a year early, with the result that returns accumulated steadily over the period. As can be seen, if an investor could have bought the shares of all GN firms one year before the good news was released and held them until the end of the month of release, there would have been an extra return of about 6% over and above the

Figure 5.3 Abnormal Returns for GN and BN Firms



Source: Ray Ball and P. Brown, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research* (Autumn 1968), p. 169. Reprinted by permission.

market-wide return. Similarly, an abnormal loss of over 9% would have been incurred on a portfolio of BN firms bought one year before the bad news was released.⁶

This leads to an important distinction between narrow and wide window studies. If a security market reaction to accounting information is observed during a narrow window of a few days (or, in the case of BB, a month) surrounding an earnings announcement, it can be argued that the accounting information is the *cause* of the market reaction. The reason is that during a narrow window there are relatively few firm-specific events other than net income to affect share returns. Also, if other events do occur, such as stock splits or dividend announcements, the affected firms can be removed from the sample, as mentioned. Thus, a narrow-window association between security returns and accounting information suggests that accounting disclosures are the source of new information to investors.

Evaluation of security returns over a wide window, however, opens them up to a host of other value-relevant events. For example, a firm may have discovered new oil and gas reserves, be engaged in promising R&D projects, or have rising sales and market share. As the market learns this information from more timely sources, such as media articles, firm announcements, conditions in the economy and industry, quarterly reports, etc., share price would begin to rise. This reflects the partly informative nature of security prices since, in an efficient market, security prices reflect all available information, not just accounting information. Thus, firms that in a real sense are doing well would have much of the effect on their share prices anticipated by the efficient market before the GN appears in the financial statements. That is, because of recognition lag, prices lead earnings over a wide window.

Clearly, this effect was taking place in the BB study. As a result, it cannot be claimed that reported net income causes the abnormal returns during the 11 months leading up to month 0. The most that can be argued is that net income and returns are associated. That is, for wide windows, it is the real, underlying, economic performance of the firm that generates the association, since both share price and (with a lag) net income reflect real performance.

To pursue this “prices lead earnings” effect, suppose that we continue to widen the window, perhaps up to several years. We will find that the association between share returns and earnings increases as the window widens. While historical cost-based net income tends to lag behind the market in reflecting value-relevant events, as the window is widened the relative effect of the lag decreases. Over a long period of time the sum of net incomes reported over that period captures more of the effects of economic factors such as those described above, even though there may be a lag in their initial recognition. This effect was studied by Easton, Harris, and Ohlson (1992), who found that the association between security returns and historical cost-based earnings improved as the window was widened, up to 10 years. A similar effect was observed by Warfield and Wild (1992), who found that the association between security returns and earnings for annual reporting periods averaged over 10 times the association for quarterly periods.

In the long run, the total income earned by the firm, regardless of the basis of accounting, will approach total income under ideal conditions (on this point, see question 16).

But a narrow window association, as BB found for month 0, provides stronger support for decision usefulness, since it suggests that it is the accounting information that actually causes investor belief revision and hence security returns.

5.3.3 Outcomes of the BB Study

One of the most important outcomes of BB was that it opened up a large number of additional usefulness issues. A logical next step is to ask whether the magnitude of unexpected earnings is related to the magnitude of the security market response—recall that BB’s analysis was based only on the sign of unexpected earnings. That is, the information content of earnings in BB’s study was classified only into GN or BN, a fairly coarse measure.

The question of magnitude of response was investigated, for example, by Beaver, Clarke, and Wright (BCW) in 1979. They examined a sample of 276 NYSE firms with December 31 year-ends, over the 10-year period from 1965 to 1974. For each sample firm, for each year of the sample period, they estimated the unexpected earnings changes. They then used the market model procedure described in Sections 4.5 and 5.2.3 to estimate the abnormal security returns associated with these unexpected earnings changes.

Upon comparison of unexpected earnings changes with abnormal security returns, BCW found that the greater the change in unexpected earnings, the greater the security market response. This result is consistent with the CAPM (Section 4.5) and with the decision usefulness approach, since the larger are unexpected earnings changes the more investors on average will revise their estimates of future firm performance and resulting returns from their investments, other things equal.⁷

Also, since 1968, accounting researchers have studied securities market response to net income on other stock exchanges, in other countries, and for quarterly earnings reports, with similar results. The approach has been applied to study market response to the information contained in new accounting standards, auditor changes, etc. Here, however, we will concentrate on what is probably the most important extension of BB, earnings response coefficients. This line of research asks a different question than BCW, namely, for a given amount of unexpected earnings, is the security market response greater for some firms than for others?

5.4 EARNINGS RESPONSE COEFFICIENTS

Recall that the abnormal securities market returns identified by BB were *averages*, that is, they showed that on average their GN firms enjoyed positive abnormal returns, and negative for their BN firms. Of course, an average can conceal wide variation about the average. Thus, it is likely that some firms’ abnormal returns were well above average and others’ were well below.

This raises the question of why the market might respond more strongly to the good or bad news in earnings for some firms than for others. If answers to this question can be

found, accountants can improve their understanding of how accounting information is useful to investors. This, in turn, could lead to the preparation of more useful financial statements.

Consequently, one of the most important directions that empirical financial accounting research took following the BB study was the identification and explanation of differential market response to earnings information. This is called **earnings response coefficient (ERC)** research.⁸

An earnings response coefficient measures the extent of a security's abnormal market return in response to the unexpected component of reported earnings of the firm issuing that security.

5.4.1 Reasons for Differential Market Response

A number of reasons can be suggested for differential market response to reported earnings. We will review these in turn.

Beta The riskier is the sequence of a firm's future expected returns, the lower will be its value to a risk-averse investor, other things equal. For a diversified investor, the relevant risk measure of a security is its beta, explained in Section 3.7. Since investors look to current earnings as an indicator of future firm performance and share returns, the riskier these future returns are the lower investors' reactions to a given amount of unexpected earnings will be.

To illustrate, think of a typical risk-averse, rational investor whose utility increases in the expected value and decreases in the risk of the return on his or her portfolio. Suppose that the investor, upon becoming aware that a portfolio security has just released GN earnings information, revises upwards the expected rate of return on this security, and decides to buy more of it. However, if this security has high beta, this will increase portfolio risk.⁹ Consequently, the investor would not buy as much more as if the security was low beta. In effect, the high beta acts as a brake on the investor's demand for the GN security. Since all risk-averse, rational, informed investors will think this way, the demand for the GN firm's shares will be lower the higher is its beta, other things equal. Of course, lower demand implies a lower increase in market price and share return in response to the GN, hence, a lower ERC.

Empirical evidence of a lower ERC for higher-beta securities was found by Collins and Kothari (1989) and by Easton and Zmijewski (1989).

Capital Structure For highly levered firms, an increase, say, in earnings (before interest) adds strength and safety to bonds and other outstanding debt, so that much of the good news in earnings goes to the debtholders rather than the shareholders. Thus, the ERC for a highly levered firm should be lower than that of a firm with little or no debt, other things equal.

Empirical evidence of a lower ERC for more highly levered firms was reported by Dhaliwal, Lee, and Fargher (1991).

Earnings Quality Recall from Section 3.3.2 that we define the quality (i.e., the informativeness) of earnings by the magnitude of the main diagonal probabilities of the associated information system. The higher these probabilities, the higher we would expect the ERC to be, since investors are better able to infer future firm performance from current performance.

As a practical matter, measurement of earnings quality is less clear, since information system probabilities are not directly observable and a sampling approach runs into problems of estimation risk due to sampling error. An indirect approach, discussed in Section 3.3.2, is to infer earnings quality by the magnitude of analysts' earnings forecast revisions following earnings announcements. However, this just raises the question of *why* analysts revise their forecasts more for some firms than others.

Fortunately, other dimensions of earnings quality are available, including the important concept of **earnings persistence**. We would expect that the ERC will be higher the more the good or bad news in current earnings is expected to persist into the future, since current earnings then provide a better indication of future firm performance. Thus, if current GN is due to the successful introduction of a new product or cost-cutting by management, the ERC should be higher than if the GN was due to, say, an unanticipated gain on disposal of plant and equipment. In the latter case, the firm's market value increases dollar-for-dollar with the amount of the gain, since there is little reason to expect the unusual gain to recur. In the new product and cost-cutting cases, the revenue increases or cost savings will persist to benefit future income statements as well, so the ERC should be higher.

Evidence that ERCs are higher the higher the persistence of unexpected current earnings changes was presented by Kormendi and Lipe (1987), whose measure of persistence was the extent to which earnings changes of the last two years continued into the current year—the greater the influence of the last two years' earnings changes on the current year's earnings change, the greater the persistence of these previous earnings.

Persistence is a challenging and useful concept. One reason, advanced by Ramakrishnan and Thomas (1991) (RT), is that different components of net income may have different persistence. For example, suppose that in the same year a firm successfully introduces a new product it also reports a gain on disposal of plant and equipment. Then, the persistence of earnings is an average of the differing persistence of the components of earnings. RT distinguish three types of earnings events:

- Permanent, expected to persist indefinitely
- Transitory, affecting earnings in the current year but not future years
- Price-irrelevant, persistence of zero

The ERCs per dollar of unexpected earnings for these are $(1 + R_f)/R_f$ (where R_f is the risk-free rate of interest under ideal conditions), 1, and 0 respectively.¹⁰

In effect, there are three ERCs, all of which may be present in the same income statement. RT suggest that instead of trying to estimate an average ERC, investors should attempt to identify the three types separately and assign different ERCs to each. In so

doing, they can identify the firm's permanent, or persistent, earning power. This implies that accountants should provide lots of classification and detail on the income statement.

To understand the ERC for permanent earnings, note that it can be written as $1 + 1/R_f$. Thus, under ideal conditions, the market response to \$1 of permanent earnings consists of the current year's installment of \$1 plus the present value of the perpetuity of future installments of $1/R_f$. (This ignores riskiness of the future installments, which is appropriate if investors are risk-neutral or the permanent earnings are firm-specific.) Writing the ERC this way also shows that when earnings persist beyond the current year, the magnitude of the ERC varies inversely with the interest rate.

Another aspect of ERCs is that their persistence can depend on the firm's accounting policies. For example, suppose that a firm uses current value accounting, say for a capital asset, and that the fair value of the asset increases by \$100. Assume that the increase results from an increase in the price of the product produced by the asset. Then, assuming that changes in current value are included in income, net income for the period will include¹¹ GN of \$100. Since unexpected changes in value occur randomly, by definition, the market will not expect the \$100 to persist. Thus, the ERC is 1.

Suppose instead that the firm uses historical cost accounting for the asset and that the annual increase in contribution margin is \$9.09. Then there will be only \$9.09 of GN in earnings this year. The reason, of course, is that under historical cost accounting the \$100 increase in current value is brought into income only as it is realized. The efficient market will recognize that the current \$9.09 GN is only the "first installment."¹² If it regards the value increase as permanent and $R_f = 10\%$, the ERC will be 11 ($1.10/0.10$).

Zero-persistence income statement components can result from choice of accounting policy. Suppose, for example, that a firm capitalizes a large amount of organization costs. This could result in GN on the current income statement, which is freed of the costs because of their capitalization. However, assuming the organization costs have no salvage value, the market would not react to the "GN," that is, its persistence is zero. As another example, suppose that a firm writes off research costs currently in accordance with GAAP. This could produce BN in current earnings. However, to the extent the market perceives the research costs as having future value, it would react positively to this BN so that persistence is negative. The possibility of zero or negative persistence suggests once more the need for detailed income statement disclosure, including a statement of accounting policies.

A second dimension of earnings quality is **accruals quality**. This approach was proposed by Dechow and Dichev (2002). They pointed out that net income is composed of:

$$\text{Net income} = \text{cash flow from operations} \pm \text{net accruals}$$

where net accruals, which can be positive or negative, include changes in non-cash working capital accounts such as receivables, allowance for doubtful accounts, inventories, accounts payable, etc., as well as amortization expense. They then argued that earnings quality depends primarily on the quality of working capital accruals, since cash flow from operations is relatively less subject to errors and manager bias, and therefore of reasonably high quality to start with.

To measure accrual quality, Dechow and Dichev suggested that to the extent current period working capital accruals show up as cash flows next period, those accruals are of high quality. This is consistent with SFAC 1, discussed in Section 3.8, where the role of accruals is envisaged as one of anticipating future cash flows. Thus, if accounts receivable at the end of the current period are \$1,000, less an allowance for doubtful accounts of \$100, and if \$900 is collected next period, then the accounts receivable and doubtful accounts accruals are of high quality since they match perfectly with the cash subsequently collected. However, if only \$800 is subsequently collected, the accruals are of lower quality since there has been an error in their estimation or, perhaps, deliberate net overstatement by management so as to increase current reported net income.

A similar argument applies to last period's accruals. Suppose, for example, that accounts receivable last period were \$700, less an allowance for doubtful accounts of \$60, and that they realized \$600 in the current period. This lowers the quality of current accruals and earnings since current bad debts expense includes the \$40 underprovision, which really belongs to last period.

To test this concept of accrual quality, Dechow and Dichev suggested estimating the following regression equation:

$$\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + \epsilon_t$$

where ΔWC_t is the change in net non-cash working capital for the firm in question for period t , that is, working capital accruals. For example, in our illustration above, if accounts receivable and allowance for doubtful accounts are the only non-cash working capital items, working capital has increased by $\Delta WC_t = \$260$ (i.e., $\$900 - \640) in period t . This is an accrual because net income includes this amount (assuming the firm recognizes income at point of sale) but it has not yet been received in cash.

CFO_{t-1} is cash flow from operations in period $t - 1$, etc., b_0 , b_1 , and b_2 are constants to be estimated, and ϵ_t is the residual error term, that is, the portion of total accruals not explained by cash from operations.

Accrual quality, hence earnings quality, is measured by the magnitude of ϵ_t , that is, high ϵ_t indicates a poor match between current accruals ΔWC_t and actual operating cash flow realizations.

Evidence that firms' ERCs and share prices respond positively to accrual quality as measured by this procedure is reported by Francis, LaFond, Olsson, and Schipper (2004 and 2005) and Ecker, Francis, Kim, Olsson, and Schipper (2006).¹³

Growth Opportunities The GN or BN in current earnings may suggest future growth prospects for the firm, and hence a higher ERC. One might think that since financial statements contain a considerable historical cost component, net income really cannot say much about the future growth of the firm. However, this is not necessarily the case. Suppose that current net income reveals unexpectedly high profitability for some of the firm's recent investment projects. This may indicate to the market that the firm will enjoy strong growth in the future. One reason, of course, is that to the extent the high

profitability persists, the future profits will increase the firm's assets. In addition, success with current projects may suggest to the market that this firm is also capable of identifying and implementing additional successful projects in future, so that it becomes labelled as a growth firm. Such firms can easily attract capital and this is an additional source of growth. Thus, to the extent that current good news in earnings suggests growth opportunities, the ERC will be high.

To illustrate, extend the persistence example above by assuming that the \$9.09 of current permanent earnings increase is expected to grow by 5% per year. The present value at 10% of a perpetuity that increases by 5% per year is $1/(0.10 - 0.05) = 20$, greater than $1/0.10 = 10$ under no-growth. Thus, the ERC is 21 rather than 11 as before.

Evidence that the ERC is higher for firms that the market regards as possessing growth opportunities was shown by Collins and Kothari (1989). They used the ratio of market value of equity to book value of equity as a measure of growth opportunities, the rationale being that the efficient market will be aware of the growth opportunities before they are recognized in net income and will bid up share price accordingly. Collins and Kothari find a positive relationship between this measure and the ERCs of their sample firms.

The Similarity of Investor Expectations Different investors will have different expectations of a firm's next-period earnings, depending on their prior information and the extent of their abilities to evaluate financial statement information. However, these differences will be reduced to the extent that they draw on a common information source, such as analysts' consensus forecasts, when forming their expectations. Consider a firm's announcement of its current earnings. Depending on their expectations, some investors will regard this information as GN, others as BN, hence some will be inclined to buy and some to sell. However, to the extent that investors' earnings expectations were "close together," they will put the same interpretation on the news. For example, if most investors base their earnings expectation on the analysts' consensus forecast, and current earnings are less than forecast, they will all regard this as BN and will be inclined to sell rather than buy. Thus, the more similar the earnings expectations the greater the effect of a dollar of abnormal earnings on share price. In effect, the more precise are analysts' forecasts the more similar are investors' earnings expectations and the greater the ERC, other things equal. For an analysis of conditions under which the ERC is increasing in the precision of analysts' earnings forecasts and how this precision is affected by factors such as the number of analysts forecasting the firm, see Abarbanell, Lanen, and Verrecchia (1995).

The Informativeness of Price We have suggested on several previous occasions that market price itself is partially informative about the future value of the firm. In particular, price is informative about (i.e., leads) earnings. Recall that the reason is that market price aggregates all publicly known information about the firm, much of which the accounting system recognizes with a lag. Consequently, the more informative is price, the less will be the information content of current accounting earnings, other things equal, hence the lower the ERC.

A proxy for the informativeness of price is *firm size*, since larger firms are more in the news. However, Easton and Zmijewski (1989) found that firm size was not a significant explanatory variable for the ERC. The reason is probably that firm size proxies for other firm characteristics, such as risk and growth, as much as it proxies for the informativeness of share price. Once these factors are controlled for, any significant effect of size on the ERC seems to go away. Collins and Kothari (1989) dealt with size by moving the wide window over which security returns were measured earlier in time for large firms, on the grounds that share price is more informative for such firms. They found that this substantially improved the relationship between changes in earnings and security returns, since a more informative share price implies that the market anticipates changes in earning power sooner. Once this time shifting was done, size appeared to have no explanatory power for the ERC.

5.4.2 Implications of ERC Research

Be sure that you see the reason *why* accountants should be interested in the market's response to financial accounting information. Essentially, the reason is that improved understanding of market response suggests ways that they can further improve the decision usefulness of financial statements. For example, lower informativeness of price for smaller firms implies that expanded disclosure for these firms would be useful for investors, contrary to a common argument that larger firms should have greater reporting responsibilities.

Also, the finding that ERCs are lower for highly levered firms supports arguments to expand disclosure of the nature and magnitude of financial instruments, including those that are off-balance-sheet. If the relative size of a firm's liabilities affects the market's response to net income, then it is desirable that all liabilities be disclosed.

The importance of growth opportunities to investors suggests, for example, the desirability of disclosure of segment information, since profitability information by segments would better enable investors to isolate the profitable, and unprofitable, operations of the firm. Also, MD&A enables the firm to communicate its growth prospects, as illustrated in Section 4.8.2.

Finally, the importance of earnings persistence to the ERC means that disclosure of the *components* of net income is useful for investors. In sum, lots of detail in the income statement, the balance sheet, and in supplemental information helps investors interpret the current earnings number.

5.4.3 Measuring Investors' Earnings Expectations

As mentioned previously, researchers must obtain a proxy for expected earnings, since the efficient market will only react to that portion of an earnings announcement that it did not expect. If a reasonable proxy is not obtained, the researcher may fail to identify a market reaction when one exists, or may incorrectly conclude that a market reaction exists when

it does not. Thus, obtaining a reasonable estimate of earnings expectations is a crucial component of information approach research.

Under the ideal conditions of Example 2.2, expected earnings is simply accretion of discount on opening firm value. When conditions are not ideal, however, earnings expectations are more complex. One approach is to project the time series formed by the firm's past reported net incomes, that is, to base future expectations on past performance. A reasonable projection, however, depends on earnings persistence. To see this, consider the extremes of 100% persistent earnings and zero persistent earnings. If earnings are completely persistent, expected earnings for the current year are just last year's actual earnings. Then, unexpected earnings are estimated as the *change* from last year. This approach was used by Ball and Brown, as described in Section 5.3. If earnings are of zero persistence, then there is no information in last year's earnings about future earnings, and all of current earnings are unexpected. That is, unexpected earnings are equal to the *level* of current year's earnings. This approach was used by Bill Cautious in Example 3.1.

Which extreme is closer to the truth? This can be evaluated by the degree of correlation between security returns and the estimate of unexpected earnings, a question examined by Easton and Harris (1991). Using regression analysis of a large sample of U.S. firms over the period 1969–1986, they documented a correlation between one-year security returns and the change in net income, consistent with the approach of Ball and Brown. However, there was an even stronger correlation between returns and the level of net income. Furthermore, when both earnings changes and levels were used, the two variables combined did a significantly better job of predicting returns than either variable separately. These results suggest that the truth is somewhere in the middle, that is, both changes in and levels of net income are components of the market's earnings expectations, where the relative weights on the two components depend on earnings persistence.

The foregoing discussion is based solely on a time series approach, however. Another source of earnings expectations is analysts' forecasts. These are now widely available for most large firms. If analysts' forecasts are more accurate than time series forecasts, they provide a better estimate of earnings expectations, since rational investors will presumably use the most accurate forecasts. Evidence by Brown, Hagerman, Griffin, and Zmijewski (1987), who studied the quarterly forecasting performance of one forecasting organization (Value Line), suggests that analysts outperform time series models in terms of accuracy. O'Brien (1988) also found that analysts' quarterly earnings forecasts were more accurate than time series forecasts. These results are what we would expect, since analysts can bring to bear information beyond that contained in past earnings when making their earnings projections.

When more than one analyst follows the same firm, it seems reasonable to take the consensus, or average, forecast as the proxy for the market's earnings expectation, following the reasoning underlying the football forecasting example of Section 4.2.2. O'Brien pointed out, however, that the age of a forecast has an important effect on its accuracy. She found that the single most recent earnings forecast provided a more accurate earnings prediction in her sample than the average forecast of all analysts following the firm, where

the average ignored how old the individual forecasts were. This suggests that the timeliness of a forecast dominates the cancelling-out-of-errors effect of the average forecast.

Despite evidence that analysts' forecasts tend to be more accurate than forecasts based on time series, other evidence, discussed by Kothari (2001), suggests that analysts' forecasts are optimistically biased, although the bias may have decreased in recent years. Nevertheless, recent studies of the information content of earnings tend to base earnings expectations on analysts' forecasts.

Theory in Practice 5.1

Cisco Systems Inc. is a large provider of networking equipment, based in San Jose, California. In August 2004, it released financial results for the quarter ended July 30, 2004. Its revenues increased by 26% over the same quarter of 2003. Its net income for the quarter was \$1.4 billion or 21 cents per share, a 41% increase over the same quarter of 2003, and 5% in excess of the average analysts' forecast of 20 cents.

Yet, Cisco's share price fell almost 18% to \$18.29 following the announcement. This fall in price seems contrary to the results of Ball and Brown and subsequent researchers, who have documented a positive market response to good earnings news. However, certain balance sheet and supplemental information was not so

favourable. For example, inventory turnover declined to 6.4 from 6.8 in 2003, gross margin declined slightly, order backlog was down and, while revenue was growing, its rate of growth appeared to be declining. Also, several analysts commented on an increase in inventories, suggesting lower earnings persistence and accrual quality to the extent these inventories would be slow in selling. Furthermore, Cisco's CEO, commenting on the quarter's results, mentioned that the firm's customers were becoming more cautious about spending.

These negative signals implied low quality and negative persistence for the good earnings news, probably compounded by very similar investor expectations. The result was a negative ERC.

5.4.4 Summary

The information content of reported net income can be measured by the extent of security price change or, more specifically, by the size of the security's abnormal market return, around the time the market learns the current net income. This is because rational, informed investors will revise their expectations about future firm performance and share returns on the basis of current earnings information. Revised beliefs trigger buy/sell decisions, as investors move to restore the risk–return tradeoffs in their portfolios to desired levels. If there was no information content in net income there would be no belief revision, no resulting buy/sell decisions, and hence no associated price changes.

For a given amount of unexpected net income, the extent of security price change or abnormal returns depends on factors such as firm size, capital structure, risk, growth prospects, persistence, the similarity of investor expectations, and earnings quality.

Following the pioneering study of Ball and Brown, empirical research has demonstrated a differential market response depending on most of these factors. These empirical results are really quite remarkable. First, they have overcome substantial statistical and experimental design problems. Second, they show that the market is, on average, very sophisticated in its ability to evaluate accounting information. This supports the theory of securities market efficiency and the decision theories that underlie it. Finally, they support the decision usefulness approach to financial reporting.

Indeed, the extent to which historical cost-based net income can provide "clues" about future firm performance may seem surprising. The key, of course, is the information system probabilities, as shown in Table 3.2. In effect, the higher the main diagonal probabilities, the greater we would expect the ERC to be. This supports the FASB's contention in its Conceptual Framework that investors' expectations are based "at least partly on evaluations of past enterprise performance" (Section 3.8). As accountants gain a better understanding of investor response to financial statement information, their ability to provide useful information to investors will further increase.

5.5 UNUSUAL, NON-RECURRING, AND EXTRAORDINARY ITEMS

In Section 5.4.1, we mentioned Ramakrishnan and Thomas' (1991) suggestion that investors separately estimate permanent, transitory, and price-irrelevant components of earnings. An interesting example of the importance of earnings persistence can be found in the reporting of events that are unusual and/or infrequent. Since these items may not recur regularly, their persistence will be transitory or price-irrelevant. This means that they must be fully disclosed; otherwise, the market may get an exaggerated impression of earnings persistence.

For accounting standards on the reporting of **extraordinary items**, we consider Section 3480 of the *CICA Handbook*. In 1989, Section 3480 was revised to introduce greater consistency in the reporting of extraordinary items on the income statement. According to paragraph 3480.02:

Extraordinary items are items that result from transactions or events that have all of the following characteristics:

- (a) they are not expected to occur frequently over several years;
- (b) they do not typify the normal business activities of the entity;
- and
- (c) they do not depend primarily on decisions or determinations by management or owners.

The last characteristic in the definition was added in the 1989 revision. Prior to that time, only the first two characteristics applied. The result was to eliminate a large number of former extraordinary items such as, for example, gains or losses on disposals of capital assets. After 1989 such unusual and non-recurring gains or losses would be included *before*

income from continuing operations, since management controls the timing of such transactions.

This revision was designed to resolve the issue of **classificatory smoothing**, whereby management could smooth (or otherwise manage) earnings from continuing operations by choosing to classify unusual items above or below the operating earnings line. Evidence that managers in the United States, prior to 1989, behaved as if they smoothed earnings from continuing operations by means of classificatory smoothing was reported by Barnea, Ronen, and Sadan (1976). By requiring those unusual items whose amounts and/or timing could be controlled by management to be consistently reported as part of operating income, the 1989 revision effectively eliminated the ability to engage in classificatory smoothing. It therefore appeared that the new Section 3480 represented an improvement in financial reporting.

However, the nature of the improvement can be questioned, based on the ERC research outlined in Section 5.4. Specifically, unusual items have low persistence. For example, a gain on sale of capital assets would have persistence of 1 or less. Other unusual items could have persistence as low as zero, to the extent that they are not value-relevant at all.

The impact of the 1989 revisions to Section 3480 caused a number of low-persistence, unusual, and non-recurring items to move from extraordinary items up to the operating section of the income statement. The income statement format following from Section 3480 is summarized as follows (we ignore income taxes for simplicity):

Net income before unusual and non-recurring items, also called core earnings	x x
Unusual and non-recurring items	<u>x x</u>
Income from continuing operations, also called operating income	x x
Extraordinary items	<u>x x</u>
Net income	<u><u>x x</u></u>

Core earnings represents the persistent component of income, and is the basis of investors' estimates of future earning power. Unusual and non-recurring items are items that do not qualify as extraordinary items under Section 3480. As mentioned, they are of low persistence, by definition.

We can now see two related problems arising from the 1989 revisions to Section 3480. First, if unusual and non-recurring items are not fully disclosed, investors may overestimate the persistence of operating income, although Section 1520 and, more recently, Section 1400 of the *Handbook* do require disclosure of these items. Second, and of greater concern, the amounts and timing of the recording of unusual and non-recurring items are subject to strategic manipulation by management. For example, if management chooses to recognize an unusual loss currently, income from continuing operations is reduced. Furthermore, if the loss had been building up for some time, earnings of previous periods are, in retrospect, overstated. More serious, management may overstate the amount of the loss—the amounts of many losses, such as a writedown of the value of property, plant, and

equipment, are highly subjective and difficult for investors to verify. Then, by excessively relieving *future* periods of charges for amortization, core earnings in future years are overstated. There is no requirement under current GAAP to separate out the effects of prior writedowns from core earnings.¹⁴ Thus, the accounting for unusual and non-recurring items has the potential to confuse the evaluation of earnings persistence.

These issues were investigated by Elliott and Hanna (1996), who found a significant decline in the core earnings ERC in quarters following the reporting of a large unusual item (usually, these were losses rather than gains). Furthermore, the ERC declined further if the firm reported numerous large special items over time. This latter evidence is consistent with the market interpreting the frequency of recording of unusual and non-recurring items as a proxy for their potential misuse. We will return to the impact of extraordinary, unusual, and non-recurring items on core earnings in our discussion of earnings management in Chapter 11.

Thus, the question appears to be open whether Section 3480 actually succeeded in improving financial reporting. From our standpoint, however, Section 3480 represents an interesting example of how theory can be brought to bear to reexamine an issue that was thought resolved.

Theory in Practice 5.2

As a result of the September 11 terrorist attacks in the United States, numerous companies incurred substantial expenses and revenue losses. For example, airlines were unable to fly for two days.

In the United States, accounting standards for extraordinary items are similar to those given above for Canada. In a 2001 news release, the FASB decided against allowing costs resulting from the attacks to be treated as extraordinary items. The FASB had originally considered allowing at least some costs as extraordinary, but came to the conclusion that it would be impossible to reliably separate direct costs (e.g., airlines' losses of revenue during the two-day shutdown) from indirect costs (e.g., continuing loss of customers

from public concerns about safety, and general loss of business and consumer confidence). Also, some of these costs would be recovered through insurance and government assistance. Consequently, the FASB concluded that all costs resulting from September 11 be classified as part of income from continuing operations, with any government assistance also reported in continuing operations, as a separate line item.

In this regard, *The Globe and Mail*, in an October 29, 2001, article, quoted Patricia O'Malley, a prominent Canadian accountant and member of the International Accounting Standards Board, as saying, "Given the world we live in, it would be hard to call them extraordinary."

5.6 A CAVEAT ABOUT THE "BEST" ACCOUNTING POLICY

To this point, we have argued that accountants can be guided by securities market reaction in determining usefulness of financial accounting information. From this, it is tempting to

conclude that the best accounting policy is the one that produces the greatest market price response. For example, if net income reported by oil and gas firms under successful-efforts accounting produces a greater market reaction than net income reported under full-cost accounting, successful-efforts should be used, because investors find it more useful.

However, we must be extremely careful about this conclusion. Accountants may be better off to the extent that they provide useful information to investors, but it does not follow that *society* will necessarily be better off.

The reason is that information has characteristics of a **public good**. A public good is a good such that consumption by one person does not destroy it for use by another. Consumption of a **private good**—such as an apple—eliminates its usefulness for other consumers. However, an investor can use the information in an annual report without eliminating its usefulness to other investors. Consequently, suppliers of public goods may have trouble charging for these products, so that we often witness them being supplied by governmental or quasi-governmental agencies—roads and national defence, for example. If a firm tried to charge investors for its annual report, it would probably not attract many customers, because a single annual report, once produced, could be downloaded to many users. Instead, we observe governments through securities legislation and corporations acts, *requiring* firms to issue annual reports.

Of course, firms' annual reports are not "free." Production of annual reports is costly. Other, more significant, costs include the disclosure of valuable information to competitors and the likelihood that manager operating decisions will be affected by the amount of information about those decisions that has to be released. For example, managers may curtail plans for expansion if too much information about them has to be disclosed. Investors will eventually pay for these costs through higher product prices. Nevertheless, investors perceive annual reports as free, since the extent to which they use them will not affect the product prices they pay. Also, investors may incur costs to inform themselves, either directly, or indirectly by paying for analyst or other information services. Nevertheless, the basic "raw material" is perceived as free and investors will do what any other rational consumer will do when prices are low—consume more of it. As a result, *investors may perceive accounting information as useful even though from society's standpoint the costs of this information outweigh the benefits to investors*.

Also, as mentioned in Chapter 1, information affects different people differently. Thus, information may be useful to potential investors and competitors but current shareholders may be harmed by supplying it. As a result, the social value of such information depends on both the benefits to potential investors and competitors, and the costs to shareholders. Such cost-benefit tradeoffs are extremely difficult to make.

Think of information as a commodity, demanded by investors and supplied by firms through accountants. Because of the public-good aspect of information, we cannot rely on the forces of demand and supply to produce the socially "right" or first-best amount of production, as we can for private goods produced under competition. The essential reason is that the price system does not, and probably cannot, operate to charge investors the full costs of the information they use. Consequently, from a social perspective we cannot rely

on the extent of security market response to tell us which accounting policies should be used (or, equivalently, "how much" information to produce). Formal arguments to support this conclusion were given by Gonedes and Dopuch (1974).

We will return to the question of regulation of information production in Chapters 12 and 13. For now, the point to realize is that it is still true that accountants can be guided by market response to maintain and improve their competitive position as suppliers to the marketplace for information. It is also true that securities markets will work better to the extent security prices provide good indications of underlying real investment opportunities. However, these social considerations do suggest that, as a general rule, accounting standard-setting bodies should be wary of using securities market response to guide their decisions.

Interestingly, an exception to this rule seems to have occurred with respect to standard setters' decisions to eliminate current cost accounting for capital assets. SFAS 33, which required U.S. firms to report supplemental current cost information for certain assets, was discontinued in 1986. Discontinuance was based in part on the influential study by Beaver and Landsman (1983), who failed to find any incremental securities market reaction to current cost information over and above the information content of historical cost-based net income.¹⁵ In Canada, Hanna, Kennedy, and Richardson (1990) recommended the discontinuance of Section 4510 of the *CICA Handbook*, which laid down procedures for supplemental current cost disclosures for capital assets. They were unable to find evidence of usefulness of this information and the section was withdrawn in 1992. It is difficult to disagree with decisions to cease production of information that no one finds useful. Nevertheless, from a social perspective, no one knows whether this decision was correct, due to the difficulties of measuring social costs and benefits. ←

5.7 THE INFORMATION CONTENT OF OTHER FINANCIAL STATEMENT INFORMATION

In this section we depart from our concentration on the information content of net income in order to consider the informativeness of other financial statement components, such as the balance sheet and supplementary information.

Overall, it has been difficult to find direct evidence of usefulness of other financial statement information, unlike the impressive evidence of market reaction to earnings described earlier. Despite the relevance of RRA information (Section 2.4), studies by Magliolo (1986) and Doran, Collins, and Dhaliwal (1988) were unable to find more than a weak market reaction to RRA. Boone (2002) reported a stronger market reaction to RRA information than to historical cost-based information, and argued that the relatively weak reaction reported by earlier researchers is due to statistical problems in their methodology. However, it seems that the question of whether or not RRA provides useful information is open.

Low reliability is one possible explanation for these mixed results, of course. Another possibility is that RRA is pre-empted by more timely sources of reserves information, such

as announcements of discoveries, and analyst forecasts. Also, the point in time that the market first becomes aware of the RRA information is often unclear. For net income, media publication of the earnings announcement provides a reasonable event date. However, given the inside nature of oil and gas reserves information and its importance to firm value, analysts and others may work particularly hard to ferret it out in advance of the annual report. If a reasonable event date for the release of other financial statement information cannot be found, return studies must use wide windows, which are open to a large number of influences on price in addition to accounting information.

However, there is an indirect approach to finding evidence of usefulness that links other information to the quality of earnings. To illustrate, suppose that an oil company reports high earnings this year, but supplemental oil and gas information shows that its reserves have declined substantially over the year. An interpretation of this information is that the firm has used up its reserves to increase sales in the short run. If so, the quality of current earnings is reduced, since they contain a non-persistent component that will dissipate if new reserves are not found. Then, the market's reaction to the bad news in the supplemental reserve information may be more easily found in a low ERC than in a direct reaction to the reserve information itself. Conversely, a higher ERC would be expected if reserves had increased.

This approach was generalized by Lev and Thiagarajan (1993) (LT). They identified 12 "fundamentals" used by financial analysts in evaluating earnings quality. For example, one fundamental was the change in inventories, relative to sales. If inventories increase, this may suggest a decline in earnings quality—the firm may be entering a period of low sales, or simply be managing its inventories less effectively. Other fundamentals include change in capital expenditures, order backlog, and, in the case of an oil and gas company, the change in its reserves.

For each firm in their sample, LT calculated a measure of earnings quality by assigning a score of 1 or 0 to each of that firm's 12 fundamentals, then adding the scores. For example, for inventories, a 1 is assigned if that firm's inventories, relative to sales, are down for the year, suggesting higher earnings quality, and a 0 score is assigned if inventories are up.

When LT added these fundamental scores as an additional explanatory variable in an ERC regression analysis, there was a substantial increase in ability to explain abnormal security returns beyond the explanatory power of unexpected earnings alone. This suggests that the market, aided perhaps by analysts, is quite sophisticated in its use of balance sheet and supplementary information. Instead of a direct reaction to this information, it seems to use it to augment the information content of earnings.

5.8 CONCLUSIONS ON THE INFORMATION APPROACH

The empirical literature in financial accounting is vast, and we have looked only at certain parts of it. Nevertheless, we have seen that, for the most part, the securities market

response to reported net income is impressive in terms of its sophistication. Results of empirical research in this area support the efficient markets theory and underlying decision theories.

The market does not seem to respond to other financial statement information as strongly as it does to earnings information. The extent to which the lack of strong market response to this other information is due to methodological difficulties, to low reliability, to availability of alternative information sources, or to failure of efficient markets theory itself is not fully understood, although it may be that investors anticipate balance sheet and supplementary information to fine-tune the ERC, rather than using such information directly.

As stated earlier, the approach to financial accounting theory that equates the extent of security price change with information content and hence with decision usefulness is known as the information approach. The essence of this approach is that investors are viewed as attempting to predict future returns from their investments. They seek all relevant information in this regard, not just accounting information. To maximize their competitive position as suppliers of information, accountants may then seek to use the extent of security market response to various types of accounting information as a guide to its usefulness to investors. This motivates their interest in empirical research on decision usefulness. Furthermore, the more information accountants can move from inside to outside the firm, the better can capital markets guide the flow of scarce investment funds.

Despite these considerations, accountants must be careful of concluding that the accounting policies and disclosures that produce the greatest market response are the best for society. This is not necessarily true, due to the public-good nature of accounting information. Investors will not necessarily demand the "right" amount of information, since they do not bear its full costs. These concerns limit the ability of decision usefulness research to guide accounting standard setters.

Nevertheless, until relatively recently, the information approach has dominated financial accounting theory and research, beginning with the Ball and Brown paper of 1968. It has led to a tremendous amount of empirical investigation that has enriched our understanding of the decision usefulness of accounting information for investors.

Questions and Problems

1. Explain the information approach to financial reporting. Does it rely on the historical cost basis of accounting?
2. Refer to the separation of market-wide and firm-specific security returns as shown in Figure 5.2. What factors could reduce the accuracy of the estimate of abnormal returns? (CGA-Canada)
3. Explain why the market might begin to anticipate the GN or BN in earnings as much as a year in advance, as Ball and Brown found in Figure 5.3. (CGA-Canada)

4. Give examples of components of net income with:
 - a. High persistence
 - b. Persistence of 1
 - c. Persistence of 0 (CGA-Canada)
5. Explain why it is desirable to find the exact time that the market first became aware of an item of accounting information if any security price reaction to this information is to be detected. Can such a time always be found? Explain why or why not. What can researchers do when the exact time cannot be isolated? (CGA-Canada)
6. Is a negative ERC possible? Explain why or why not.
7. A researcher finds evidence of a security price reaction to an item of accounting information during a narrow window of three days surrounding the date of release of this information and claims that it was the accounting information that caused the security price reaction. Another researcher finds evidence of security price reaction to a different item of accounting information during a wide window beginning 12 months prior to the release of the financial statements containing that item. This researcher does not claim that the accounting information caused the security price reaction but only that the information and the market price reaction were associated.
Explain why one can claim causation for a narrow window but not for a wide window. Which price reaction constitutes the stronger evidence for usefulness of accounting information? Explain.
8. XYZ Ltd. is a large retail company listed on a major stock exchange, and its reported net income for the year ended December 31, 2009, is \$5 million. The earnings were announced to the public on December 31, 2009.

Financial analysts had predicted the company's net income for 2009 to be \$7 million. The financial analysts' prediction of \$7 million net income was in effect up until the release of the 2009 earnings on December 31, 2009.

Assumptions

- No other news about XYZ Ltd. was released to the public on December 31, 2009.
- No significant economy-wide events affecting share prices occurred on December 31, 2009.
- Financial analysts' forecasts about XYZ Ltd.'s net income represented the market's expectations about XYZ Ltd.'s income.

Required

- a. Would you expect a change in price of XYZ Ltd.'s common stock on December 31, 2009? If so, why? Explain.
- b. Consider the two situations below:
 - i. The deviation of forecasted earnings from actual earnings of \$2 million (i.e., \$7 million – \$5 million) is completely accounted for by the closing down of a number of its retail outlets.
 - ii. The deviation of the forecasted earnings from actual earnings of \$2 million is completely accounted for by a fire in XYZ Ltd.'s largest retail outlet, which had caused the outlet to be closed temporarily for six months.

In which of these two scenarios would you expect the price change of XYZ Ltd.'s common stock to be greater? Explain.

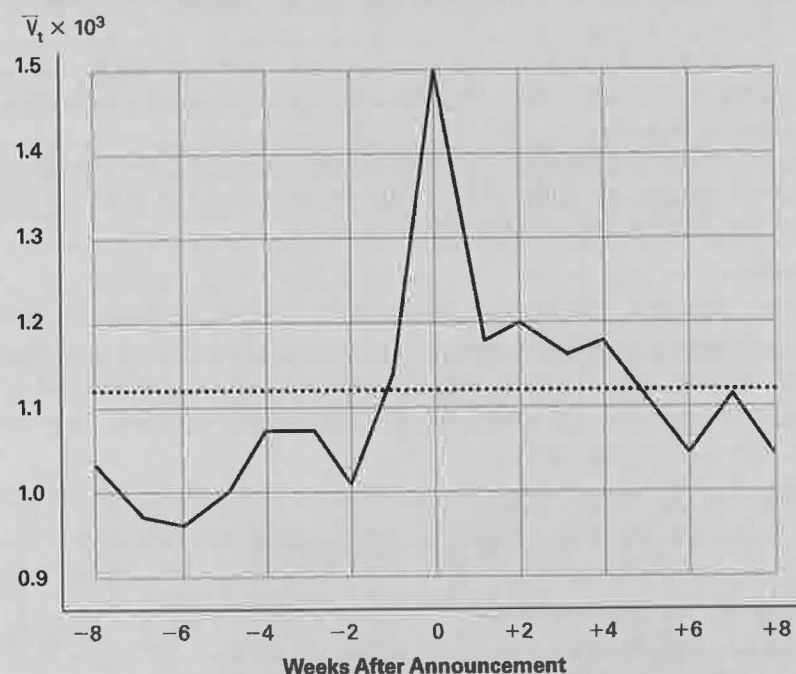
9. In a classic study, Beaver (1968) examined the trading volume of firms' securities around the time of their earnings announcements. Specifically, he examined 506 annual earnings announcements of 143 NYSE firms over the years 1961–1965 inclusive (261 weeks).

For each earnings announcement, Beaver calculated the average daily trading volume (of the shares of the firm making that announcement) for each week of a 17-week window surrounding week 0 (the week in which the earnings announcement was made). For each firm in the sample, he also calculated the average daily trading volume outside its 17-week window. This was taken as the normal trading volume for that firm's shares.

For each week in the 17-week window, Beaver averaged the trading volumes over the 506 earnings announcements in the sample. The results are shown in Figure 5.4 below. The dotted line in the figure shows the average normal trading volume outside the 17-week window.

As can be seen from the figure, there was a dramatic increase in trading volume, relative to normal, in week 0. Also, volume is below normal during most of the weeks leading up to week 0.

Figure 5.4 Volume Analysis



Source: W. Beaver, "The Information Content of Annual Earnings Announcements," *Journal of Accounting Research*, Supplement, 1968: 67–92. Reprinted by permission.

Required

- Why do you think trading volume increased in week 0?
 - Why do you think trading volume was below normal in the weeks leading up to week 0?
 - Do Beaver's volume results support the decision usefulness of earnings information? Explain.
 - Which is the better indicator of decision usefulness, the abnormal return measure (Figure 5.2) or the volume measure? Explain. (CGA-Canada)
10. Discuss the impact of firm size on the ERC.
11. X Ltd. is a growth firm that uses very conservative accounting policies. Y Ltd. is growing more slowly and uses current value accounting for its capital assets and related amortization. Otherwise, X Ltd. and Y Ltd. are quite similar. They are the same size and have similar capital structures and similar betas.

Required

- Both X Ltd. and Y Ltd. report the same GN in earnings this year. Which firm would you expect to have the greater security market response (ERC) to this good earnings news? Explain.
 - Suppose that X Ltd. had a much higher debt-to-equity ratio and beta than Y Ltd. Would your answer to part a change? Explain.
12. On the basis of the empirical evidence presented in this chapter, do you feel the FASB is correct in its claim in SFAC 1 (see Section 3.8) that investors' expectations about future enterprise performance "are commonly based at least partly on evaluations of past enterprise performance?" Explain.
13. By defining extraordinary items to be infrequent, not typical of normal business activities, and not depending on management decision, Section 3480 of the *CICA Handbook* greatly increases the need for adequate disclosure of the components of reported net income. Explain why.
14. Explain why financial statement information has characteristics of a public good. Include a definition of a public good in your answer. What does this imply about using the extent of security market reaction to accounting information to guide accountants? Standard setters?
15. You estimate empirically the ERC of firm J as 0.38. Firm K is identical to firm J in terms of size, earning power, persistence of earnings, and risk. Unlike firm J, however, firm K includes a high-quality financial forecast in its MD&A. You estimate firm K's ERC as 0.57. Which firm's net income report appears to be more useful to investors? Explain. Does this mean that all firms should be required to prepare high-quality financial forecasts? Explain.
16. It is important to realize that different bases of accounting, such as current value accounting and historical cost-based accounting, do not affect total earnings over the life of the firm, but only the *timing* of the recognition of those earnings. In effect, over the life of the firm, the firm "earns what it earns," and different bases of accounting will all produce earnings that add up to this total.

If this is so, then we would expect that the greater the number of time periods over which we aggregate a firm's historical cost earnings, the closer the resulting total will be to economic earnings, that is, the earnings total that would be produced over the same periods under ideal conditions.

This was studied by Easton, Harris, and Ohlson (1992) (EHO) and by Warfield and Wild (1992) (WW). EHO proxied economic income by the return on the firm's shares on the securities market. When this return was aggregated over varying periods of time (up to 10 years) and compared with aggregate historical cost-based earnings returns for similar periods, the comparison improved as the time period lengthened. WW studied a similar phenomenon for shorter periods. They found, for example, that the association between economic and accounting income for quarterly time periods was on average about 1/10 of their association for an annual period, consistent with mixed measurement model-based net income lagging behind economic income in its recognition of relevant economic events.

Required

- a. In Example 2.1, calculate net income for years 1 and 2 assuming that P.V. Ltd. uses historical cost accounting with straight-line amortization for its capital asset, while retaining all other assumptions. Verify that total net income over the two-year life of P.V. Ltd. equals the total economic net income that P.V. Ltd. would report using present value amortization.
 - b. Do the same in Example 2.2, assuming that the state realization is bad and good in years 1 and 2 respectively.
 - c. Use the fact that accruals reverse to explain why total net income over the two years in parts a and b above are the same under economic and straight-line amortization. Are these results consistent with the empirical results of EHO and WW outlined above?
17. On May 8, 2001, the *Financial Post* reported "The Street Turns Against Canadian Tire." Canadian Tire Corporation, Ltd.'s share price had risen by \$0.75 to \$24.90 on May 2, 2001, following a news release in which Wayne Sales, president and CEO at the time, said "We are pleased with our ability to deliver double digit growth...." Canadian Tire's reported earnings of \$0.37 per share exceeded analysts' expectations.

The market soon learned, however, that reported earnings included an \$8 million one-time gain on sale of certain Canadian Tire assets. Without this gain, earnings were \$0.29 per share, 6% below earnings for the same quarter of 2000. Canadian Tire's share price quickly fell back to \$22.95.

The *Post* reported that "passing off" a one-time gain as part of operating earnings "didn't fool or impress analysts" and is something they "hoped not to see again."

Required

- a. Use efficient securities market theory to explain the rise in Canadian Tire's share price on May 2, 2001, and the rapid subsequent fall in share price.
- b. Was Canadian Tire correct in including the \$8 million one-time gain in operating income? Explain.
- c. Evaluate the persistence of Canadian Tire's reported net income of \$0.37 per share (no calculations required). Does the fact of Mr. Sales' ignoring of this item in his press release affect your evaluation? Explain why or why not.

18. On October 19, 2000, *The Globe and Mail* reported on Imperial Oil Ltd.'s earnings for the third quarter ended on September 30, 2000, released on October 18. Net income was a record \$374 million, up from \$191 million for the same quarter of the previous year. Return on equity was 25.7%, up from 10.1% a year earlier. Earnings for the quarter included a \$60 million gain on Imperial's sale of its Cynthia pipeline and other assets. Cash flow for the quarter was \$433 million, up from \$270 million in the previous year's third quarter. The reported profit of \$374 million was in line with analysts' expectations.

On October 18, the TSE oil and gas index rose by 0.6%, as the market anticipated higher prices for oil and gas. Yet, Imperial's share price fell on the day by \$1.25, to close at \$37.35. *The Globe and Mail* also reported analysts' comments about a widening discount for heavy crude oil, relative to light crude. Imperial is Canada's biggest producer of heavy crude. Also, Imperial's production from its oil sands projects declined in the quarter, due to maintenance and temporary production problems.

Required

- a. Use the market model to calculate the abnormal return, relative to the TSE oil and gas index, on Imperial Oil's shares for October 18, 2000. Imperial Oil's beta is approximately 0.65. The risk-free interest rate at this time was approximately 0.0002 per day. Note the theoretical relationship $\alpha_j = R_f (1 - \beta_j)$.
 - b. Is the abnormal decline in Imperial's share price on October 18 consistent with efficient securities market theory? Explain why or why not. Consider earnings persistence in your answer.
 - c. In what section of the income statement should the \$60 million gain on the sale of the Cynthia pipeline be reported? Explain.
19. Refer to Theory in Practice 5.2 in Section 5.5 concerning the September 11 terrorist attacks in the United States.

Required

- a. Do you agree that the costs resulting from September 11 are not extraordinary items? Explain why or why not.
 - b. Evaluate the persistence (in words—no calculations required) of these costs.
 - c. From the standpoint of efficient markets theory, how should these costs be disclosed? Does it matter whether or not they are classified as extraordinary?
20. On October 21, 2004, Abitibi-Consolidated Inc., a large Canadian-based newsprint and groundwood producer, reported income from continuing operations for its third quarter, 2004, of \$182 million, or \$0.41 per share. This compares with a net loss from continuing operations for the same quarter of 2003 of \$70 million, or \$0.16 per share. Sales for the quarter were \$1,528 million, and core earnings (i.e., excluding unusual and non-recurring items) were \$82 million. The analyst forecast for the third quarter, 2004, was a loss of \$0.06 per share.
- Income from continuing operations included unusual and non-recurring items of \$239 million, being a gain of \$239 million from foreign exchange conversion. Much of the company's long-term debt is denominated in U.S. dollars. The foreign exchange gain arose because of the rising value of the Canadian dollar, relative to the U.S. dollar, during the quarter.

Comparable figures for the third quarter of 2003 were: sales of \$1,340 million, a core loss of \$32 million, and foreign exchange conversion gain of \$13 million.

There is no mention of R&D costs in the company's third quarter report. Its 2003 annual report mentions R&D only in passing, with reference to forest conservation. Presumably, R&D expenditures are relatively low.

Abitibi-Consolidated's share price rose \$0.59 to \$7.29 on the Toronto Stock Exchange on October 21, 2004. The S&P/TSX index gained 59 points to close at 8,847 on the same day. According to media reports, the increases were driven by a "red-hot" materials and energy sector (including Abitibi-Consolidated). In a conference call accompanying its third quarter report, Abitibi-Consolidated's CEO complained that investors were too pessimistic about the company. The company's beta, according to Yahoo! Finance, is 0.779. The risk-free interest rate at this time was approximately 0.00020 per day. Note the theoretical relationship $\alpha_j = R_f(1 - \beta_j)$.

Required

- Evaluate (in words only) the persistence of Abitibi-Consolidated's operating income for the third quarter of 2004.
 - The company reported no extraordinary items in its third quarter report. Do you feel that the foreign exchange gain of \$239 million should have been reported as extraordinary, rather than included in income from continuing operations? Explain why or why not.
 - Do you feel that the increase in Abitibi-Consolidated's share price on October 21 was consistent with efficient securities market theory or do you agree with the CEO? Explain, and show any calculations.
21. On September 13, 2005, the shares of Best Buy Co. fell \$5.14 to \$45.22 on the New York Stock Exchange, a decline of 10.2%. The decline followed the release of its second quarter 2005 financial results. Best Buy is a large North American retailer of consumer electronics and appliances, with over 700 stores in the United States and Canada, including the Future Shop chain. Best Buy reported earnings of 37 cents per share, compared with 30 cents for the same quarter of 2004. However, its 2005 earnings included an expense for stock-based compensation. If the second quarter 2004 had included this expense, earnings for that 2004 quarter would have been 26 cents per share. Sales revenue rose 10% for the quarter, including a 3.5% increase in same-store sales (same-store sales, which exclude the effects of new store openings, are a closely watched indicator of retail company performance). Its gross profit rose to 25.5% of sales from 24.2% a year earlier. In its news release accompanying the financial results, management predicted earnings of 28 to 32 cents per share for its third 2005 quarter. This prediction included the effects of Hurricane Katrina which, in late August 2005, caused widespread devastation in parts of the southern United States and led to a brief closing of 15 company stores. Management also announced plans to open 86 new stores in the United States and Canada during the fiscal year ending February 25, 2006. While management expressed concerns about the effects of high gasoline prices on consumer spending, it reiterated its guidance that future annual growth in earnings from continuing operations would be about 26%.
- Analysts had estimated second quarter 2005 earnings of 38 cents per share, and third quarter earnings of 34 cents.

The New York Stock Exchange Composite Index closed at 7,578.25 on September 13, 2005, and at 7,762.60 on September 12, 2005. Best Buy's stock beta, as per its website, is 1.84. The risk-free interest rate at this time was approximately 0.0001 per day.

Required

- What percentage return on Best Buy's stock price would you expect on September 13, 2005, strictly as a result of market-wide (i.e., systematic) factors? Use the market model and show your calculations. Note the theoretical relationship $\alpha_j = R_f(1 - \beta_j)$.
 - What was the abnormal return on Best Buy's stock on September 13, 2005? Is this return consistent with securities market efficiency? Explain why or why not.
 - Evaluate (in words only—no calculations required) the persistence of the news (i.e., the increase from 26 cents per share to 37 cents per share) in Best Buy's second quarter 2005 earnings.
22. An article in *The Globe and Mail*, February 16, 2002, reported that IBM used the \$300 million proceeds of a sale of one of its business units to reduce operating expenses in its fourth quarter 2001 income statement. This added about 8 cents per share to its fourth quarter earnings. As a result, IBM beat analysts' forecasts by 1 cent per share.
- IBM defended its treatment by claiming that buying and selling businesses is a normal business practice, and that most of the sale proceeds related to intellectual property that it had developed. The article quotes a Merrill Lynch analyst as saying, "Our only concern is that the company could have done more to call out the magnitude of the transaction." According to the article, IBM's share price fell by 4% as a result of this news.
- While not mentioned in this article, the SEC opened a preliminary inquiry into IBM's accounting practice, expressing concerns that IBM had let it be known that the reason for its higher operating earnings was tight cost controls, rather than the sale proceeds. This inquiry was subsequently dropped, but the SEC issued a bulletin reminding firms to report gains or losses on asset sales separately from operating costs.

Required

- Suppose that IBM was subject to the provisions of Section 3480 of the *CICA Handbook* (actually, a similar standard exists in the United States). Was its treatment of the sale of its business unit consistent with the definition of an extraordinary item under Section 3480? Explain why or why not.
- Explain why IBM's share price dropped following the Merrill Lynch analyst's comment and the news of the SEC's preliminary inquiry.

Notes

- As mentioned in Section 4.5, this estimate of α should equal $(1 - \beta_j)R_f$, where R_f is the risk-free rate of interest. Here, $\alpha_j = 0.0001$ implies $R_f = 0.0005$ per day for $\beta_j = 0.80$.
- The market return for day 0 is calculated as follows:

$$R_{MD} = \frac{\text{Level of D/J index, end day 0} + \text{Dividends D/J index, day 0}}{\text{Level of D/J index, beginning day 0}} - 1$$

Sometimes, because of data problems, the dividends are omitted.

3. Calculated as:

$$\begin{aligned} E(R_{jt}) &= \alpha_j + \beta_j R_{Mt} \\ &= 0.0001 + (0.80 \times 0.001) \\ &= 0.0009 \end{aligned}$$

4. Again, this abnormal return should not be confused with abnormal earnings like those of P.V. Ltd. in Example 2.2. While the idea is the same, abnormal return here refers to a *market* return, whereas abnormal earnings refer to *accounting* net income.
5. Other ways to estimate investor expectations are discussed in Section 5.4.3.
6. Note that the loss on bad news firms can be converted into a gain by selling short the shares of the bad news firms.
7. The information system described in Section 3.3.2 contained only two columns—GN and BN. To model the market response to the *magnitude* of GN or BN, we would add additional columns—VGN (very GN), MGN (moderate GN), VBN, etc. The information system concept can be extended to any number of information refinements. Our two-column example is only for simplicity.
8. For reasons explained in Section 5.3.2, the interpretation of a narrow-window ERC is different from a wide-window ERC. Here we will refer, somewhat loosely, to both types as simply ERCs.
9. Recall from Section 3.7 that in reasonably diversified portfolios, most of the portfolio risk stems from the betas of the securities in the portfolio. Thus, if the investor were to buy more shares of a security whose beta is greater than the average beta of the securities currently in the portfolio, this will raise the average, hence increasing portfolio risk.
10. These are “market value” ERCs, where the market’s response to GN or BN is expressed in terms of the abnormal change in market value, rather than the abnormal return as in our ERC definition. To convert a market value ERC to a rate of return ERC, divide it by opening firm value.
11. This is analogous to the inclusion of unexpected oil and gas price changes in income under RRA. See Table 2.3.
12. This assumes that the market knows that the increase in market value is \$100. Possibly, this would be known from sources other than the financial statements. If not, considerable onus is put on the firm for full disclosure. Perhaps MD&A provides a vehicle for management to reveal this information.
13. However, accrual “quality” is perhaps not the best term for the ε_t residuals. As Dechow and Dichev point out, they contain a mixture of discretionary and non-discretionary items. For example, firms that have high volatility in their operating and policy environments will experience larger and more frequent inventory writedowns, greater swings in bad debts and, generally, more accruals with greater estimation errors. Consequently, a careful scrutiny by the investor of firm characteristics and manager strategies and incentives is needed to fully understand whether accrual quality is good or bad.
14. Note that under RRA, adjustments to prior period estimates are reported separately. Perhaps this approach could be adopted for the effects of current write-offs on future core earnings. If so, this would constitute a major extension of full disclosure. We will return to this possibility in Section 11.6.3.
15. A number of reasons other than lack of usefulness can be suggested for these results. First, the market may value the information but is able to estimate it from other sources. Second, the information may be relevant but unreliable, since a large number of assumptions and estimates go into its preparation. Third, the market may have reacted to the information but the research methodology was not sufficiently powerful to find it. For example, the Beaver and Landsman (1983) study was criticized by Bernard (1987) on methodological grounds. Indeed, some evidence of securities market reaction has been found in studies subsequent to Beaver and Landsman. Thus, Bernard and Ruland (1987) found some information content for current cost information, at least in certain industries.