

# **Why Warn? The Impact of Profit Warnings on Shareholder's Equity**

**Fayez A. Elayan, Ph.D.**

**Thomas O. Meyer, Ph.D.**

**Edward Sun, M.B.S.**

**Department of Commerce  
Massey University, Albany Campus**

**Keywords:** Management Profit Warnings, Analyst Forecasts, Information Asymmetry

**JEL Classifications:** G3, G14, G38

**Contact:** Fayez A. Elayan  
Private Bag 102-904, NSMC  
QB 2.53, Dept. of Commerce  
Massey University – Albany Campus  
Auckland, New Zealand  
**Phone:** 64-9-443-9799, Ext. 9456  
**Fax:** 64-9-441-8177  
**Email:** [F.Elayan@Massey.ac.nz](mailto:F.Elayan@Massey.ac.nz)

The authors gratefully acknowledge the research assistance provided by Amanda Sun and Ruth Meyer.

## **Why Warn? The Impact of Profit Warnings on Shareholder's Equity**

### **Abstract**

Announcements by firms that earnings will be lower than those forecast by market analysts is expected to result in an adverse share price reaction. A significantly negative reaction is documented for a large sample of profit warnings made between 1997-2000. This research also analyses factors expected to impact market reaction to ascertain why firms make these voluntary announcements. Analysis of variables representing avoidance of shareholder lawsuits suggests this is an important motive. Conversely, announcement timing does not seem to be an attempt to delay market response. Examination of factors portraying information asymmetry suggests they have a significant, differential impact on market reaction.

## Introduction

Conventional wisdom suggests that market participants, particularly shareholders and stock analysts, do not like to receive bad news, more especially when it comes as a surprise. Perhaps this explains why over the past five years an increasing number of companies are choosing to voluntarily issue profit warning statements. However, given the fact that these profit warning announcements merely serve to presage the later, official report of lower earnings, one might question why firms bother to issue the warning at all?

The spectre of surprising investors, particularly disappointing them with large unexpected negative earnings, presents managers with a disclosure dilemma of whether to warn the market or not. In fact, the dilemma is considerably more complicated than this binary choice: warnings can take various forms (e.g., a specific earnings forecast or a qualitative estimate), and can be communicated through alternative channels (for example through a public announcement via the news wires or a conference call with analysts). Several studies (Penman (1984), (1987), Chambers and Penman (1984), and Kross and Schroeder (1984)) find that managers often tend to delay bad news, thus the conclusion was to not warn. More recently, Skinner (1994) concludes that legal liability creates an asymmetric incentive favoring timely management forecasts of bad results, suggesting that warnings should be made.

Researchers and practitioners have both discussed the merits of publishing management forecasts either on a voluntary or a mandatory basis. Previous research typically focuses on the comparative accuracy of management forecasts relative to analysts' or model forecasts in order to determine whether the former are potentially more informative. Skinner (1994, 1997), Kasznik and Lev (1995) and Baginski, Hassell and Kimbrough (2002) report that the legal environment in the United States encourages management's increased use of warning strategies for quarterly earnings. Jennings (1984), Waymire (1984, 1986), and Libby and Tan (1999) report that analysts revise their forecasts immediately after management provides an earnings forecast warning, suggesting informational value arising from management forecasts.

The first objective of this research is to document the extent of the negative market reaction to profit warning announcements. A second objective is to develop evidence regarding management's apparent motive for making these voluntary announcements. The two specific motivations considered are: 1) management of market reaction by timing information releases around market closures, and 2) avoidance of shareholder lawsuits

over failure to provide timely negative information. A final objective is to examine firm characteristics that represent the information asymmetry between management and shareholders to determine if these are significant determinants of management's decision to issue profit warnings.

Management profit warning announcements in the form of earnings per share (EPS) point projections and closed interval estimates are examined in this paper. A sample of 2295 EPS warning announcements made by 1498 firms listed on United States stock exchanges from May 1, 1997 to December 31, 2000 is collected (termed Dataset A). Further accounting information about the firms, such as earnings before interest and taxes (EBIT), long term debt, total assets, etc. is found for 1437 of these announcements (Dataset B) and this data is examined separately.

The price reaction to profit warning announcements is found to be negative as expected and it is both statistically and economically (a two-day return of almost -15%) significant. Further, the degree of reaction is affected by the size of the difference between the consensus analyst forecast and management's warning forecast, firm size and the firm's basic earning power. Firms with higher information asymmetry factors face larger price drops following warning announcements. The hypothesised market timing strategy is not supported as a motive in this research. Factors used to represent the hypothesised avoidance of shareholder lawsuits motive, i.e., the interval between the announcement day and the end of the financial period, the number of announcements made by a firm and whether the warning pertains to annual or quarterly earnings are found to be significant predictors of market reaction.

The remainder of this paper is organised as follows. Section 2 describes the types of profit warnings and the legal environment regarding management forecasts. The relevant literature is discussed in Section 3. The testable hypotheses examined are developed in Section 4. Section 5 describes the data collection procedure and the methods of analysis. The empirical results are contained in Section 6. Finally, Section 7 summarises the research findings and draws conclusions.

## **II. Management Profit Warnings and the Legal Environment**

The federally-mandated, corporate earnings report required by the U.S. Securities and Exchange Commission is described by the Securities Exchange Act of 1934. The requirements for quarterly and annual reports are described as follows: 1) *Form 10-Q shall be used for quarterly reports under Section 13 or 15(d) of the Securities Exchange Act of*

1934, filed pursuant to Rule 13a-13 (17 CFR 240.13a-13) or Rule 15d-13 (17 CFR 240.15d-13). A quarterly report on this form pursuant to Rule 13a-13 or Rule 15d-13 shall be filed within 45 days after the end of each of the first three fiscal quarters of each fiscal year. No report need be filed for the fourth quarter of any fiscal year. 2) Form 10-K shall be used for annual reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 (the "Act") for which no other form is prescribed. This form also shall be used for transition reports filed pursuant to Section 13 or 15(d) of the Act. Annual reports on this form shall be filed within 90 days after the end of the fiscal year covered by the report. To maintain clarity and consistency throughout this research, when reference is made to a firm's earnings report, this term will refer to the federally-required earnings statement.

Rule 10b-5 of the Securities Exchange Act of 1934 requires that firms disclose material information in a forthright and timely manner. The main economic justification for having such a rule is that the low-cost dissemination of information will enhance market efficiency. The demand for financial reporting and disclosure arises from information asymmetry and agency conflicts between managers and outside investors. Prior to 1973, Securities and Exchange Commission (SEC) regulations prohibited disclosure of management earnings forecasts in documents filed with the SEC under the federal securities laws. The primary reason for this policy was the general belief that such disclosures lacked credibility. However, in 1978, the SEC reversed its policy and adopted statements encouraging disclosure of such forecasts. Currently, there are few formal sanctions to prevent management from issuing an erroneous or misleading forecast. The SEC requires only that forecasts be made "in good faith" and "on a reasonable basis" (SEC 1978). In addition, the SEC (1979) introduced a "safe harbour rule" to protect management from the liability provisions of the federal securities laws for forecast information. Rule 10b-5 and the change in SEC policy are possibly factors that have encouraged the increase in the issuance of profit warnings by corporations.

In this research, profit warnings are defined as earning forecasts made by management that warn of an expected earnings shortfall in relation to a relevant standard. This standard may be an analyst's forecast, a previous comparable financial period, or an earlier management forecast. The earning shortfalls may be in terms of net profits, sales, EBIT, earnings per share, etc. In this particular research, warnings for EPS shortfalls compared to analysts' EPS forecasts are examined. These warnings are typically made around the end of a financial period, but prior to the required quarterly or annual earnings report. The forecast earnings may differ from the figures later disclosed in the formal earnings report.

There are several forms of profit warning statements that management may choose to utilise. A point projection is a specific earnings estimate, for example, ‘Philip Morris Companies warned on June 28 that its 1999 financial year earnings per share is expected at \$3.30, rather than the current consensus estimate of \$3.32 per share’. A closed interval estimation specifies an earnings range, eg. ‘Microsoft warned on December 14, 2000, that expected second quarter earnings will be \$0.46-\$0.47 versus the estimate of \$0.49’. An open interval specifies a minimum or maximum forecast, i.e., ‘W.W. Grainger Inc. warned on January 7, 2000 that the minimum earnings for Quarter 4 are \$0.30 per share while the first call consensus is at \$0.54 per share’. A qualitative estimate is a general statement of loss, for example, ‘Technology Inc. warned on June 17, 1997 (a second *warning* in two weeks) that due to continued weakness in customer demand, primarily for its higher performance products, fourth quarter revenues, gross margins and earnings per share are not expected to be achieved’. Point projection and closed interval estimates are the two types of profit warnings examined in this study.

### **III. Literature Review**

#### **A. Studies of Analyst Forecasts**

Investors employ forecasts of future cash flows to assess firm values. There are typically three important types, namely, forecasts using mathematical models, analyst-provided forecasts and management forecasts. Studies that have evaluated the accuracy of analysts' earnings forecasts based on U.S. data have largely concluded that analysts provide better future earnings estimates than those obtained from applying statistical forecasting techniques to historic earnings information (Fried and Givoly (1982) and Brown, Higgins and Huong (2001)). This is an intuitively appealing finding as analysts have two important advantages over statistical forecasting models. They have an information advantage with access to more data than simply past earnings. They also have a timeliness advantage since they can use information that has become available since the last earnings announcement. Further, the market seems to accept the validity of analyst forecasts and uses them as a standard against which to assess firm performance. Bird (2000) examines 21 countries and finds that analysts' earnings forecasts are overly optimistic and not very accurate. However, investors still give them significant weight in determining stock prices. Matsumoto (2002) concludes that there are great benefits to meeting analyst forecasts. Conversely, not meeting earnings forecasts leads to share price declines.

## **B. Studies of Management Forecasts**

Management does sometimes announce earnings forecasts for their firms. But, these are not necessarily required by law except as they provide timely, material information under Rule 10b-5 of the SEC Act of 1934. In March 1973, the Financial Analyst Federation (FAF) issued a three-part monograph. One part was a research report on corporate forecasts (Norby, 1973). It reported that 78 articles appeared in the *Wall Street Journal* between October 1971 and September 1972, concerning management forecasts. These articles contained 89 forecasts issued by 73 corporations that varied widely in size and industry. The FAF study provides evidence that such forecasts are used and useful. The FAF also surveyed nearly 7000 members and based on almost 1000 responses finds that 99% of the portfolio managers surveyed responded that they considered earnings forecasts in making investment decisions. Of the total responses, 29% state that they frequently make buy or sell decisions based on company management forecasts, and 28% believe that systematic public disclosure of management forecasts should be required. Foster (1973) conducts a study that evaluates stock market reaction to 68 estimates of annual EPS by company officials. Fifty-nine of these forecasts are issued within 30 days of the preliminary (unaudited) annual earnings announcement. He concludes that “On the basis of volume and price studies, both individual investors and the aggregate market consider pre-audited estimates of EPS to have informational content”.

Researchers have compared analysts’ forecasts with management forecasts. Waymire (1984, 1986) concludes that bad news (good news) management forecasts are associated with significant negative (positive) abnormal returns in the days immediately surrounding the date of the management forecast publication in the *Wall Street Journal*. He finds that management forecasts are more reliable than analysts’ forecasts given that management forecasts are reported after the release of analysts’ forecasts and the time horizon is within one year. Jennings (1984) presents evidence of a statistical association between the release of earnings forecasts by management and subsequent financial analyst forecast revisions. The degree and direction of this association depends on the ex-post accuracy of the management forecast. Analyst forecast revisions acted to confirm the information contained in the management forecast.

Cox (1985) finds that firms with large market values are more likely to disclose management annual earnings forecasts, while firms with greater earnings variability are less likely to disclose it. Hassell, Jennings, and Lasser (1988) conclude that during the four weeks following management announcements, analyst forecast errors for firms releasing a

management earnings forecast decline at a significantly greater rate than forecast errors of similar firms without management projections. McNichols (1989) reports a significant association between news and price changes at the time of both analyst and management forecasts. Share price reaction to management's forecasts are found to be a positive function of both the unexpected component of the information and the information's precision. Chopra, Lakonishok, and Ritter (1992) argue that overreaction is more evident for small companies' stocks.

Pownall, Wasley and Waymire (1993) use 1252 management forecasts disclosed between the 1979-1987 period and find there are no significant differences between price response to alternative forecast types<sup>1</sup>. However, point forecasts are generally associated with estimated regression coefficients that are more positive and significant. Mensah, Nguyen and Ryan (1996) conclude that qualitative management earnings forecasts are as informative as point projections.

Information asymmetry arguments suggest that rational investors will recognise that disclosure quality varies systematically by firms and discount management forecasts on the basis of their past forecast accuracy. Evidence has been developed to suggest that managements appear to acquire forecasting "reputations" among analysts. King, Pownall and Waymire (1990) suggest that forecast disclosures emerge as voluntary managerial actions to reduce costly information asymmetry in capital markets. Williams (1996) finds that prior forecasts by management are associated with analyst forecast revisions following a subsequent managerial forecast.

Tan, Libby and Hunton (2002) document that management can use various pre-announcement strategies to guide analysts' and investors' expectations for a low level of earnings which is sometimes even lower than actual earnings. Thus, there will be no surprise or even a positive surprise at formal earning release. The results for the efficacy of this strategy are unclear as no research has thus far examined the resulting share price performance.

## **1. Management Forecasts and Legal Disclosure Requirements**

Upon observing large stock price declines (typically at earnings announcement dates), plaintiffs often argue that managers failed to promptly disclose material bad news. Plaintiffs then claim this caused them to buy an overvalued security that declined in value



after management revealed this information. Plaintiffs in the U.S. have favourably settled many of these suits out-of-court.

Evidence suggests that U.S. management forecasting behaviour has changed over time. Patell (1976) suggests that in the 1960s and 1970s managers selectively released good news. Then, in the late 1980s and early 1990s, litigation against companies and their auditors increased. Skinner (1994) argues that fear of legal liability relating to Rule 10b-5 suits gives U.S. managers incentive to hasten disclosure of bad news. The reasons cited are that first, early disclosure is a defense against shareholders' claims that management withheld adverse information. Second, early disclosure shortens the period in which investors can qualify as members of a class action suit. Based on a sample of 93 NASDAQ firms, Skinner provides evidence that unconditional stock price response to bad news forecasts is greater than the response to good news forecasts. Kasznik and Lev (1995) find that managers are twice as likely to disclose forecasts during periods of large negative earnings news than large positive earnings news for a sample of 565 NYSE and AMEX firms. Frankel, McNichols and Wilson (1995) find that potential costs associated with legal liability and reputation do deter management from issuing optimistic forecasts. Skinner (1997) concludes that more timely disclosure of adverse of earning news is associated with lower settlement amounts.

Baginski, Hassell and Kimbrough (2002) conduct a study comparing management earnings forecasts in the U.S. and Canada. They conclude that because the legal environment is far less litigious than that in the U.S., Canadian management forecasts earnings more frequently. Further, Canadian managers do not exhibit the tendency to issue negative forecasts as is prevalent in the U.S. Finally, Canadian managers are found to issue more increasing-earnings forecasts, their forecasts are more often annual, and are both long-term and more precise.

## **2. Management Forecasts and Timing**

Prior research also indicates that timing is a disclosure characteristic affecting the traditional-earnings and unexpected-price-change relationship, especially for bad news.

---

<sup>1</sup> The forms examined here are point projections, closed interval estimation and open intervals.

Lorek (1984) documents positive abnormal returns for unexpected negative changes in earnings derived from time-series models and fourth quarter earnings releases. Mendenhall and Nichols (1988) also report a much weaker price reaction to fourth quarter bad news, especially when measured relative to security analysts' forecasts. Damodoran (1988, 1989) finds that some bad news is unanticipated and that earnings announcements made on a Friday are more likely to report earnings declines and result in more negative abnormal returns. Chen and Mohan (1994) find that smaller companies and companies listed on NASDAQ/OTC markets are more likely to change announcement dates/times in the case of lower-than-expected-earnings compared to larger firms and firms listed on the NYSE.

#### **IV. Development of Testable Hypotheses**

##### **A. Market Reaction to the Profit Warning**

Firm managers who determine that it is necessary to issue a profit warning, whether driven by concerns about shareholder lawsuits under SEC Rule 10b-5 or for other reasons, presumably do so because they believe this is material and important information (Skinner (1994, 1997) and Kasznik and Lev (1995)). Thus, a voluntary warning that earnings will be less than those expected by previous analyst forecasts is clearly an announcement with negative implications from the market's perspective. Market reaction in this research is measured by the market-model adjusted, cumulative average abnormal return (CAAR) over a two-day period based on the announcement day ( $t = 0$ , and  $t = +1$ ). The preceding logic leads to the following hypothesis. **Hypothesis 1:** *A negative and significant stock price response (CAAR) is expected to be associated with management EPS warning announcements.*

Two variables are employed as proxies to test whether share price reaction is conditional on the degree of difference between consensus analyst forecast of EPS (AEPS) and management's EPS forecast<sup>2</sup> (MEPS). The first variable is the dollar difference between the two earnings per share (EPSD\$) forecasts, (i.e., AEPS minus MEPS). Although this variable is a logical choice, it suffers from the deficiency that a \$0.05 difference is effectively treated the same for a stock selling at \$1.00 as for a \$100 per share stock. The second variable (termed EPSD%) is equal to EPSD\$ divided by the share price. Scaling the difference by the share price means that EPSD% represents a relative measure of the EPS differential.

---

<sup>2</sup> For interval estimates, the average of the interval is employed.

Univariate Z-tests and multivariate regression analysis are employed in this study to offer empirical evidence. Hypothesis 1 implies that announcements where the analyst and management EPS forecast difference is greater are expected to be associated with a more significantly negative market reaction in univariate tests. Similarly, in the regressions, which employ the CAAR as the dependent variable, a negative and significant parameter estimate is expected for the EPS difference variables.

## **B. Timing of Management Announcements**

Damodoran (1988, 1989), Mendenhall and Nichols (1988) and Chen and Mohan (1994) report that timing is a consideration for management announcements of earnings forecasts. If management potentially wishes to reduce the negative market response to profit warnings then it is conceivable that the announcements will be made at a time when market response is delayed. The expectation under this reasoning is that announcements made after Friday 4 p.m. will generate a different response than announcements made at Tuesday 10 a.m., for example. This logic implies that if market participants are unable to trade directly after the announcement due to the weekend then when they return to work on Monday morning they will have had a longer period of time to digest the information contained in the profit warning and may react less negatively. Further, not only Friday afternoons, but holidays, especially, three-day weekends and unexpected market closures (for example, September 11, 2001) may also provide similar timing advantages. This market timing hypothesis may be expressed as follows. **Hypothesis 2:** *A smaller, share price change is expected for profit warning announcements made prior to weekends or holidays in comparison to normal weekday announcements.*

There are four years in the sample period so the number of designated three-day weekends (i.e., Martin Luther King, Jr. Day, Washington's Birthday, Memorial Day and Labour Day), and other potential three-day weekends, due to New Year's Day, Good Friday, Independence Day, Thanksgiving and Christmas, in this sample is rather small. In fact of 1437 announcements (in Dataset B) only 14 occur on holidays, and several are not three-day weekend holidays. Thus, developing a variable to proxy holiday announcements seems impractical. However, approximately 12.4% of all announcements are made on Friday. Therefore to provide a proxy for deliberate market timing, a dummy variable (DFRIDAY) is employed that equals one for Friday announcements, and is zero otherwise. Market reaction should be least negative on Fridays under Hypothesis 2. Further, the

parameter estimate for the DFRIDAY variable is expected to be positive and significant in the cross-sectional, multivariate regressions.

### C. Avoidance of Shareholder Lawsuits

As previously discussed, SEC Rule 10b-5 requires that firms disclose important information to investors as quickly as is possible. Numerous studies (Skinner (1994), Kasznik and Lev (1995), and Frankel et al. (1995)) suggest that management releases material information, especially that which is negative, to provide information to shareholders in a timely manner. Further, for firms that are subjected to SEC accounting and enforcement actions, researchers (Griffin, Grundfest, and Perino (2000) and Dechow, Sloan, and Sweeney (1996)) report a significant negative market reaction. Skinner (1997) finds that lower lawsuit settlements are related to more timely disclosure of adverse earnings information.

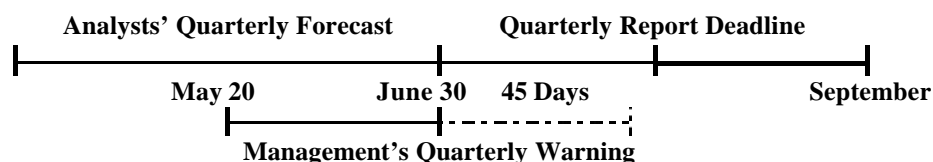
If the primary motivation for issuing profit warnings is to avoid shareholder lawsuits, then when management does in fact issue a profit warning, logic suggests that they should be perceived as acting ultimately to preserve shareholder value and leads to the following hypothesis. **Hypothesis 3** *Profit warnings undertaken to minimise the possibility of shareholder class-action lawsuits are expected to generate less negative market reaction, in comparison to those issued for other reasons.*

There are several aspects of a profit warning that may be posited as offering evidence of a greater desire to avoid shareholder lawsuits. Three characteristics of the profit warnings may be considered to provide evidence under the lawsuit avoidance hypothesis. The first issue is the relative date of the profit warning in comparison to the end of the reporting period. The second aspect is in regard to whether the profit warning is the first, or a subsequent warning. Finally, whether the warning is in regard to quarterly or annual earnings may be a relevant attribute.

As noted above, management has an incentive to act in a preemptive manner, or equivalently, provide the earliest warning possible, to shorten the period of time during which investors may become members of the class-action lawsuit. The difference in days between the profit warning announcement date and the end-of-period date may be taken as indicating management's desire to provide evidence in a timely manner. To make the calculation of this variable as clear as possible, consider the following example depicted in Figure 1, below. Regulations require firms to report quarterly earnings within 45 days after the end of a quarter. Assume that management has a warning to be announced in regard to

quarter-end June (30th), and they make the warning on May 20th. The last date on which management could make the quarterly earnings report would be August 14th. DAYSD is calculated as the difference between the end of the reporting period and the profit warning announcement date. Thus, warnings made prior to the period-end date are considered negative numbers, and those after are represented by a positive number of days. In the above example, the DAYSD variable would be  $-41$  days. The implication of this hypothesis is that the earlier the profit warning is made, the smaller (less negative) the market reaction will be. In other words, the relationship between DAYSD and the CAAR is expected to be negative.<sup>3</sup>

**Figure 1**  
**Timeline for Analyst Forecasts, Management's Profit Warnings**  
**and Quarterly Earnings Report**



Some firms in the sample made more than one warning announcement during the sample period. Firms that feel it necessary to make a second or third (or more) warning, would presumably be highly concerned about ensuring the release of material, negative information. A dummy variable representing the number of announcements (DANNO) is created that equals one for the first announcement and equals zero for those that are subsequent. Under the lawsuit avoidance hypothesis the market reaction should be most negative for the first announcement, and less negative for subsequent profit warnings.<sup>4</sup> In the multivariate regression, the parameter estimate for the DANNO variable is expected to be negative and significant.

Market reaction to profit warnings may also depend upon whether the earnings forecast applies to a quarterly period or to an annual period. By nature, an annual earnings report will only be made once per year, compared to potentially four quarterly earnings reports.

<sup>3</sup> An alternative explanation that leads to the same expected negative relationship might be developed in regard to the quality/reliability of the profit warning. Warnings made later, particularly after the "books are closed" for the quarter, might be perceived as being more accurate. Thus, the more positive the DAYSD variable, the greater the reliability of the forecasted EPS shortfall, and the more negative the market reaction.

<sup>4</sup> Another argument that is also consistent with this prediction is that the first announcement contains the most information and that it does the most to decrease information asymmetry. Market reaction to subsequent announcements should be lower, as they provide less information.

However, an annual report will necessarily summarise the earnings for an entire year and may be taken as providing a greater amount of material information. On the other hand, a profit warning in regard to quarterly earnings is perhaps less important from a long-term perspective, but may possibly be somewhat more immediately relevant to shareholders. Avoidance of shareholder lawsuits, if focused on preserving firm value for the long-term suggests that profit warnings about annual earnings provide more relevant information. The lawsuit avoidance hypothesis may then be taken as predicting that profit warnings for annual earnings are expected to generate a smaller negative market reaction in comparison to quarterly earnings warnings. A dummy variable (DYRQR) is created to proxy for this effect equaling one for warnings about annual earnings and zero for quarterly earnings warnings. Given this variable's construction it should be positively related to the market's price reaction under this hypothesis.

#### **D. Information Asymmetry**

The separation of firm ownership from firm control leads to different levels of information being possessed by management compared to shareholders and other market participants. This information asymmetry implies that management is better informed about some aspects of the firm's operations and future prospects for success than investors. For firms that are experiencing poor (or worse-than-expected) earnings the level of information asymmetry may have an impact on market reaction to management's profit warnings. Where information asymmetry is relatively greater, the revelation of expected earnings shortfalls seems likely to provide greater information content and this logic leads to the following hypothesis. **Hypothesis 4:** *The stock price response is expected to be more negative for firms with relatively higher levels of information asymmetry.*

Four variables are employed to represent different levels of information asymmetry. These are Tobin's q, whether the firm is in a high-tech industry, the level of industry regulation and the relative amount of intangible assets.

Tobin's q (TQ) is calculated as the market value of equity divided by the book value of equity. This variable is frequently employed to capture the value of growth opportunities. Management should have the best information about growth potential so the higher TQ, the greater the hypothesised degree of information asymmetry. Hence, investors are expected to react more negatively to profit warnings from firms with relatively larger values of TQ. Further, the parameter estimate for TQ in the regression employing market return as the dependent variable should be negative.

High-tech firms are generally thought to have large growth potential in comparison to firms in traditional industries. At the same time, their current share price is believed to reflect this greater potential, rather than being based on current earnings as may be more true for traditional firms. This difference suggests that the information gaps for high-tech firms are higher. Thus, profit warnings made by high-tech firms would be associated with more negative market reaction in comparison to non-high-tech firms and this variable should have a negative parameter estimate in the regression model. In this research, high-tech firms are defined as firms with a SIC code in the following ranges: Drugs (2833-2836), Computers (3570-3577), Electronics (3600-3674), Programming (7370-7379), and Research and Development Services (8730-8734). A dummy variable (DHTECH) is created that equals one for high-tech firms and is zero otherwise.

Certain firms face more governmental regulation than do others. Greater regulatory control provides a means to reduce information asymmetry between management and outsiders. Hence, it is expected that price reaction for more highly-regulated firms will be less negative than for less-regulated firms. In this paper, highly-regulated firms are defined as firms with an SIC code that begins with either a four (transportation, communications, utilities and sanitary services) or a six (finance, insurance and real estate). The dummy variable (DREG) employed equals one for highly-regulated firms and is zero, otherwise. Its expected sign in the regression should be positive under the information asymmetry hypothesis.

Firms often include the value of intangible assets in their financial accounting statements. These intangible assets are typically firm-specific and often state a value for goodwill. By definition, intangible assets are not tangible, and as such their values are more subjective than physical assets. The greater the amount of intangible assets a firm claims, the higher the level of information asymmetry. The intangible asset ratio (INTANGR) is calculated as intangible assets divided by total assets. It is used as a proxy to test whether market price reaction for firms with a higher intangible ratio is more negative than that for low INTANGR firms. In the multivariate regression its sign is expected to be negative.

## **E. Control Variables**

Firm size has been found to be an important variable in determining market reaction to firm earnings announcements by various researchers, including Cox (1985), Chopra et al. (1992) and Chen and Mohan (1994). Normally investors might be thought to assume that larger firms will be safer than small firms and the market reaction should thereby be less

negative. The market value of equity and firm total assets are most commonly used to represent firm size. Market value of equity is calculated using the market price (averaged over the five-day period preceding the announcement) times the number of outstanding shares. In this study, the natural logs of both market value of equity (LNMVE) and total assets (LNTA) are employed to provide a control variable for size, as these variables are typically skewed. Both variables are utilised in the univariate tests for differential market reaction to profit warning announcements by relatively large or small firms.

Highly leveraged firms face more financial risks than firms with low levels of leverage, in general. This will become even more true when firms face earnings shortages as this could damage their ability to pay debt interest or have cash for dividends. The leverage (LEVER) ratio employed is calculated as long-term debt divided by the sum of long-term debt and the market value of equity.<sup>5</sup> If firms with higher levels of leverage are perceived as being riskier, it seems likely that market reaction to profit warnings for these firms will be more negative.

Earning power expresses the ability of firms to generate operating profits from the assets employed. A variable representing basic earning power (BEP) is calculated as EBIT divided by total assets. Firms with greater basic earning power are expected to suffer relatively less from profit warning announcements.

## **IV. Data Collection and Method of Analysis**

### **A. Data Sources and Description**

The EPS profit warning announcements utilised in this research are for U.S. companies and were obtained from [www.briefing.com](http://www.briefing.com).<sup>6</sup> Sample profit warning announcements are provided in the Appendix. Briefing.com provides detailed earning warning announcements starting in 1998. Warning announcements for the period of May 1997 to December 1997 were collected from its daily Stock Short Stories sector. Daily share prices and additional accounting information such as total assets, total debt, EBIT, etc. have been obtained from

---

<sup>5</sup> An alternative version of leverage (long-term debt divided by total assets) is also employed in tests not reported. The findings are all qualitatively similar to those reported here.

<sup>6</sup> Briefing.com provides details about the warning announcement, including the company name and ticker symbol, the exact date of the announcement, the analyst forecast prior to the announcement (the consensus estimate of analysts as reported by Zacks Investment Research, Inc. [www.zacks.com](http://www.zacks.com)), the relevant quarter or year, and management's earnings estimate. A profit warning is defined as "any earnings preannouncement in which a company reports that revenues or earnings will be below analysts' estimates. Only companies that are covered by at least one Wall Street analyst will be listed".



DataStream. *Dow Jones Interactive* is used to identify any confounding events around the management warning announcement (days  $t = -1$  to  $t = +1$ ).

The initial sample of 3682 warning announcements was generated from Briefing.com during the period May 1, 1997 through 31 December 2000. 1077 open interval or qualitative announcements are omitted. Announcements by firms without Datastream share prices (86), confounding events in the three-day announcement window (78), incomplete information after the announcement period (39) and announcements dropped by SAS Eventus due to data limitations (107) were also omitted. Of the remaining 2,295 warnings, 1,437 have (generally) complete accounting information available from DataStream. To avoid losing information due the data deletion process, the total (2295) sample without accounting information is referred to as Dataset A and the (1437) sample with accounting information is referred to as Dataset B. For analysis that does not require the use of accounting information, the results employing Dataset A are shown.

A summary of basic information for all variables is provided in Table 1. Several points are noteworthy. First, for all variables, except BEP<sup>7</sup>, the median is smaller than mean. For example, the majority of firms making warning announcements are firms with total assets less than \$682 million, but some of them are quite large as the mean is nearly ten times larger. Second, examination of the minimum value for the earnings difference variable (EPSD\$) shows it to be zero. Normally, the profit warning estimate is smaller than the consensus analyst forecast, otherwise there is no reason to warn. In this case, management's warning was for an interval EPS estimate and the resulting difference (based on the average MEPS) was zero. Looking at the summary information for DAYSD shows that profit warnings are issued on average more than 15 days before the end of the reporting period. One firm made the warning nearly one and one-half years early. At the other extreme, one firm made its warning about annual earnings just three days before the deadline to release its annual report.

---

Insert Table 1 about here.

---

Table 2 indicates that there are 1497 firms in Dataset A and 892 firms in Dataset B which issued at least one profit warning. For both data sets, over 60% of the firms made

---

<sup>7</sup> Because of the total asset mean is about 10 times bigger than its median, the median of BEP is larger than the mean of BEP.

only one warning announcement. Conversely, about 35% of all firms have made multiple announcements, although very few firms made more than four warnings.

---

Insert Table 2 about here.

---

Table 3 shows how the announcements are distributed on the basis of day-of-the-week. The announcements are fairly evenly distributed across the week, with the exception of the lowest number (about 12.5%) of announcements on Friday. This is inconsistent with the market timing hypothesis which would suggest that a relatively larger number of announcements would occur on Friday to take advantage of weekend.

---

Insert Table 3 about here.

---

## **B. Methods of Analysis**

This study uses two different methods of analysis: First, SAS Eventus employs a market model to estimate the abnormal security returns associated with profit warning announcements. The slope and intercept terms used in the market model are estimated over a 160-day period (from day  $t = -250$  to day  $t = -90$ , relative to the announcement day  $t=0$ ). Following Patell (1976), the standardised abnormal return approach is used to generate test statistics. Several studies use the same procedure, for example, Linn and McConnell (1983), and Schipper and Smith (1983). The generalised sign Z (GSZ) test is used to test for the fraction of positive and negative average abnormal returns. The null hypothesis for the GSZ is that the fraction of positive returns is the same as in the estimation period. Cowan (1992) provides examples of the GSZ. Univariate tests for significant differences in CAARs between groups split on the basis of the variables previously described are employed to provide evidence on the hypotheses of interest.

A multivariate regression model is also used to develop further evidence on the hypotheses developed earlier. In these regressions the dependant variable is the two-day CAAR from day  $t = 0$  to day  $t = +1$  (CAAR2). The first regression model used to simultaneously<sup>8</sup> test the information asymmetry, lawsuit avoidance and market timing

---

<sup>8</sup> In analysis that is not reported here due to space considerations, three separate regressions are also estimated to test the hypotheses individually. All three models include the four control variables. The information asymmetry model adds INTANGR, TQ, DREG and DHTECH. The lawsuit avoidance model adds DAYSD, DANNO and DYRQR. Finally, the market timing model adds DFRIDAY. The results of this analysis is qualitatively similar, both in terms of parameter estimate signs and significance, to that reported in the text and is available from the authors upon request.

hypotheses is given in equation (1) below. In this model, the variable representing the EPS forecast difference is EPSD\$ and the independent variables have been previously defined. It may be noted that the variables associated with  $\beta_1$ - $\beta_4$  are the control variables,  $\beta_5$ - $\beta_8$  are the information asymmetry variables,  $\beta_9$ - $\beta_{11}$  are the lawsuit avoidance variables and the DFRIDAY variable is to test the market timing hypothesis.

$$\begin{aligned} \text{CAAR2} = & a + \beta_1 \text{EPSD\$} + \beta_2 \text{LNNTA} + \beta_3 \text{BEP} + \beta_4 \text{LEVER} + \beta_5 \text{INTANGR} + \beta_6 \text{TQ} \\ & + \beta_7 \text{DREG} + \beta_8 \text{DHTECH} + \beta_9 \text{DAYSD} + \beta_{10} \text{DANNO} + \beta_{11} \text{DYRQR} \\ & + \beta_{12} \text{DFRIDAY} + e, \end{aligned} \tag{1}$$

where:  $\epsilon$  is the regression error term. The second model employed is identical the model above except that the relative earnings difference (EPSD%) is employed instead of EPSD\$. Table 4 shows the anticipated share price response to management profit warnings based on the proxy variables as developed under hypotheses 1-4.

---

Insert Table 4 about here.

---

## V. Empirical Results

### A. Market-Model Adjusted Returns

Table 5 presents the event study output using Dataset A for the period of 90 days before, to 90 days after, the announcement day. Average Abnormal Return (AAR), Median Abnormal Return (MAR), the number of positive versus negative (Pos:Neg) abnormal returns, the Z-statistic (Z-stat) for the average abnormal return and the generalised sign Z (G Sign Z) are reported in the table. The largest average abnormal return occurs on  $t=0$  (-7.76%), followed by  $t=+1$  (-7.13%). The two-day event window cumulative average abnormal return (CAAR2) is -14.89%.<sup>9</sup> The z-statistic is -43.847 which is statistically significant at the 0.01% level and the generalised sign Z statistic (324 positive returns to 1971 negative returns) of -31.962 is similarly significant. These highly negative market-model results are consistent with the expectation that share prices will drop following a management earnings warning as has been maintained throughout this study.

---

Insert Table 5 about here.

---

<sup>9</sup> Similarly negative returns are found for Dataset B. In all ways, these results are consistent and as such, are not reported.

One can also hardly fail to note that on many of the days prior to the announcement, there are significant and negative AARs. Although the exact reason for this occurrence is beyond the scope of this research it may be speculated that investors have identified these firms with poorer-than-expected-earnings and have started to downgrade market prices prior to the profit warning, as efficient-market arguments would suggest. There is some inferential support for this notion as this decline is relatively gentle on a day-by-day basis in comparison to the large declines on both day  $t=0$  and  $t=+1$ . It is also possible that there is information leakage in regard to the possibility of a profit warning being made by management. Figure 1 provides a clear visual depiction of the pattern of average and cumulative abnormal returns. As proposed above, it appears that in the days prior to the profit warning the market starts a downward anticipatory movement (as shown by the AAR trendline). There is then a steep drop during the two-day announcement window in the AAR and thereafter, there is a gradual recovery as shown by the CAAR.

---

---

Insert Figure 1 about here.

---

---

A final point regarding this analysis is that the only daily AAR that is significant after the two-day announcement period is the positive return (+0.12%) for day  $t+2$ , suggesting some small overreaction. Interestingly, the CAAR for the post-event period ( $t+2$  to  $t+90$ ) at +4.04% is positive and significant at the 0.1% level. This might be consistent with the idea that management makes the profit warning to “cushion the blow” for investors in advance of the actual, lower earnings report.

## **B. Univariate Test Results**

### **1. Market Reaction Hypothesis**

Univariate test results for Hypothesis 1 are shown in Table 6 for the EPSD\$ variable divided into five groups on the basis of its magnitude. The table shows the two-day ( $t=0$ ,  $t=+1$ ), three-day ( $t=-1$ ,  $t=+1$ ), and the post-announcement period ( $t=+2$ ,  $t=+90$ ) CAARs and Z-test statistics for the grouped announcements. The groups are divided equally and are arrayed from the largest difference (Group 1A) to the smallest (Group 1E) in the top section (A) of the table. As all of the two-day and three-day CAARs are negative and significantly different from zero based on the Z-tests, the discussion that follows focuses on the relative CAARs. As expected under the market reaction hypothesis, the CAARs are increasingly more negative for the larger difference groups. The difference between the

largest- and smallest-difference groups' two-day (-7.11%) and three-day (-7.33%) CAARs are both significant at the 0.1% level. Section B shows similarly that when the announcements are grouped as being above and below the median, the below-median group's CAARs are significantly less negative than that of the above-median group. There is no particularly discernible pattern for the post-event CAARs suffice to say that with one exception, they are positive and statistically significant<sup>10</sup>.

## 2. Market Timing Hypothesis Evidence

Table 7 shows market response for management warning announcements grouped on the basis of day-of-the-week. In Section A the two-day CAAR for Monday is shown to be lowest (-16.11%), but the other four CAARs all fall between -14% and -15%, and Friday's two-day CAAR is actually slightly more negative than Wednesday's. This same pattern is also observed for the three-day CAARs. In Section B, the CAAR for all Monday through Thursday announcements is compared to that for Friday. The two-day and three-day differences between the Friday and non-Friday CAARs are 0.76% and 0.41%, respectively, neither of which is statistically significant. In the post-event period, Friday's CAAR is the lowest of any day suggesting the least amount of price rebound. Overall, these findings do not support the hypothesis that management makes profit-warning announcements predominantly on Fridays to decrease market reaction to the bad news.

---

Insert Table 7 about here.

---

## 3. Lawsuit Avoidance Hypothesis Evidence

The profit warning announcements are first divided into five groups on the basis of when the warning was made in comparison to the end of the reporting period (i.e., DAYSD) to provide evidence on the lawsuit avoidance hypothesis. Table 8 shows that these five groups are as follows: Group 1A=-90 to -30, 1B=-29 to -11, 1C=-10 to -1, 1D= 0 to +9 and 1E= +10 to +45. Under this hypothesis the expectation is that the CAARs should become increasingly negative as DAYSD becomes more positive. Section A of the table shows that Group 1A certainly has the least negative CAAR, while the most negative CAAR is that for Group 1D, on the basis of both the two-day and three-day cumulative returns. Comparison 1F shows that the difference between the 1A and 1E (two-day)

---

<sup>10</sup> In the interest of saving space the analysis conducted using the relative difference, i.e., EPSD% is not reported, but these results are qualitatively similar.

CAARs equals 2.59% and this difference is significant at the 0.1% level. Interestingly, in the post-event period, the Group 1A CAAR shows the greatest rebound (+7.05%) while Group 1E's is the lowest (1.07%), and the difference between them is significant at the 0.1% level. Group 1D's rebound is nearly as large (+6.52%) of that 1A.

---

Insert Table 8 about here.

---

In Section B, announcements are grouped on the basis of whether they were made before the end of financial quarter (Groups 1A, 1B and 1C) or after it (Groups 1D and 1E). The before group's (labeled 2A) two-day CAAR equals -14.21% whereas the CAAR for the after group (2B) is -16.06%. The difference between 2A and 2B is -1.85% and the Z-test statistic (-11.237) is significantly different from zero at the 0.1% level. Although the pattern of CAARs (in Section A) are not uniformly decreasing as the hypothesis predicts, the comparison of the two extreme cases and the latter before and after comparison does accord with the expectation of the lawsuit avoidance hypothesis.

Table 9 reports the CAARs grouped on the basis of the number of profit warning announcements by firm. In Section A, the sample is divided into five groups, based on whether the firm made one, two, three, four or five (or more) announcements during the period. The most negative two-day CAAR is for the group of firms that issued only one warning (-16.52%) and this is significantly lower than the CAARs for the other four groups with multiple warnings. In Section B, a comparison is made of the first- versus second-announcement CAARs of the 531 firms that made two announcements. The difference between these two CAARs (-3.67%) is significant ( $Z=-16.904$ ) at the 0.1% level. Further, the same pattern is exhibited by the three-day CAARs. The evidence in Table 9 provides consistent support for the expectations of the lawsuit avoidance hypothesis as expressed previously.

---

Insert Table 9 about here.

---

The profit warning announcements in the sample are also split on the basis of whether they pertain to quarterly or annual earnings. Table 10 shows that the two-day, and three-day CAARs for annual profit warnings are 1.98% and 1.89% lower, than their quarterly counterparts, respectively. Both of these differences are significant at the 0.1% level. It is also of interest to note that the share prices of the annual-earning profit warnings rebound

to a significantly greater extent than do those for quarterly-earning warnings, in the post-event period. These results are consistent with prior expectations developed under the lawsuit avoidance hypothesis.

---

---

Insert Table 10 about here.

---

---

#### **4. Information Asymmetry Hypothesis Evidence**

Univariate test results of the four variables used to represent different levels of information asymmetry are shown in Table 11. Firms with above-median ratios of intangible assets to total assets (INTANGR) experience significantly more negative two- and three-day CAARs in comparison to firms with below-median INTANGR ratios. In the post-event period, the below-median INTANGR firms earn a significantly greater, positive CAAR. In like manner, market reaction to profit warnings by firms with above-median Tobin's q ratios is significantly more negative than for below-median firms. The post-event period CAAR for firms with relatively high TQ ratios is significantly lower than for low TQ firms. Firms making profit warnings that are classified here as being regulated have significantly less negative event-period CAARs in comparison to their non-regulated counterparts. Both types of firms have positive and significant post-event CAARs, but the difference between the two groups is not significant. Finally, high-tech firm shares react more negatively to profit warning announcements in the event period than do non-high-tech firm shares and the difference is significant. The post-event period CAAR for non-high-tech firms is positive and significant while that of high-tech firms is positive but the z-test statistic is insignificant. All of these event-period results are in line with the expectations developed under Hypothesis 4 that market reaction for firms with greater degrees of information asymmetry will be significantly more negative.

---

---

Insert Table 11 about here.

---

---

#### **5. Firm Control Variables**

Table 12 reports the market response to management warning announcements grouped on the basis of the control variables, i.e., market value of equity, total assets, basic earning power and leverage. The two-day window results show that the price drop for firms with larger MVE values (CAAR=-13.02%) is on average 1.85% less negative than for firms

with lower MVEs. Firms with larger total assets also experience a significantly less negative event-period CAAR compared to smaller firms. Firms with relatively higher ratios of basic earning power have a two-day CAAR (-12.99%) which is significantly less negative than that for firms with low BEP (-14.99%). Highly leveraged firms' share prices decline significantly more during the two-day event period (-16.63%) than do firms with relatively lower leverage (-11.26%). These results are all in accord with the expectations discussed earlier.

---

Insert Table 12 about here.

---

### **C. Regression Analysis**

Thirteen independent variables are used to explain the market reaction to profit warnings and provide evidence on the four hypotheses previously developed. The two-day CAAR is the dependent variable and the regression results are shown in Table 13. The regression models depicted are the same with the exception that the EPD\$ variable is used to provide evidence on Hypothesis 1 in the left-hand side results (Model 1). For Model 2 the results are shown in the table's right-hand side and the EPD% difference variable is employed. As the two models provide very similar results the discussion focuses on Model 1 and any relevant differences will be noted. Table 13 provides both standard t-tests for parameter significance, as well as the White test statistic which uses standard errors that have been corrected for heteroscedasticity.

The EPS difference variables both yield negative parameter estimates as predicted under Hypothesis 1. However, EPD% is not a significant explanatory variable, whereas the EPD\$ variable is significant at the 0.1% level. This finding is interesting because it suggests that investors focus on the absolute dollar value of the difference between the analyst forecast and management's EPS forecast, rather than the relative difference as a percentage of share price.

The coefficient for the DFRIDAY variable used to test whether there is an association between market reaction and profit warnings made on Friday is positive as expected under the market timing hypothesis, however it is not significant. This finding is consistent with the insignificant univariate findings reported earlier, and suggests that there is no support for the contention that managers attempt to release bad news at a time which will delay market reaction.



The sign of the parameter estimates for the number of announcements variable (DANNO) is negative as expected under Hypothesis 3 and is significant at the 1% level. The profit warning release date variable's (DAYSD) coefficient also has a negative sign as expected under the lawsuit avoidance hypothesis. The parameter estimate is significant in Model 1 at the 5% level, but it is insignificant in Model 2. The variable employed to denote whether the profit warning relates to an annual or quarterly report (DYRQR) has the expected positive sign, but the test statistics are insignificant. Taken in conjunction with the consistently supportive univariate test results, these regression findings provide support for the implications of the lawsuit avoidance hypothesis as developed in this research.

Four variables are employed to examine the implications of the information asymmetry hypothesis. All four of these variables have parameter estimates with a negative sign. This is expected for the Tobin's q (TQ), high-tech (DHTECH) and intangible asset ratio (INTANGR) variables. However, the sign for the regulated (DREG) firms variable is expected to be positive. The INTANGR and DHTECH variables are found to be significant in both regression models. Overall, the regression results and the highly consistent univariate findings suggest that market reaction is affected by factors that represent a greater knowledge gap between management and investors.

Two of the control variables (firm size as represented by total assets and basic earning power) have both the expected signs and are significant in both models. Leverage is expected to have a negative association with market reaction, but its coefficient is positive, albeit insignificant. The F-tests for the model's overall explanatory ability are significant at the 0.1% level in both cases. The adjusted R-square measures suggest a modest degree of goodness-of-fit for the models.

---

Insert Table 13 about here.

---

## **VI. Summary and Conclusions**

Profit warnings are a voluntary announcement made by firms disclosing management's expectation that earnings will be less than those forecast by investment analysts. This research documents that market reaction to these announcements is highly negative as one would expect from news that market participants will presumably interpret as being bad. The magnitude of this negative reaction (-15% over the two-day announcement period) suggests that this event is not only statistically, but economically significant as well. Given

such an adverse effect on shareholder welfare this research attempts to develop evidence of why firms voluntarily release this earnings forecast in advance of their federally-required earnings reports.

One hypothesis tested is that management may be trying to manage market reaction by selectively timing when they make these announcements. This idea is termed the market timing hypothesis and leads to the expectation that profit warnings might be announced at times when investors are unable to react immediately, like on Fridays after the market closes. Contrary to this expectation, Friday is the least popular day to make a profit warning and the cumulative average abnormal return is not significantly less negative compared to other days.

Management may also be making profit warnings to provide material information in a timely manner in an attempt to avoid shareholder lawsuits. Both univariate and multivariate evidence that is consistent with this concept is developed and is found to be significant. Namely, market reaction is less negative when management makes the warning relatively earlier, when management has made more than one warning and when the warning is made in regard to annual versus quarterly earnings.

The extent of the information asymmetry between managers and investors is also considered as a factor for predicting which announcements generate a more negative market reaction. Firms with relatively high Tobin's q ratios, engaged in high-tech operations, working in non-regulated industries and having high levels of intangible assets are found to experience significantly more negative returns.

In conclusion, larger firms with greater basic earning power and relatively lower leverage should be expected to suffer less from making a profit warning. Similarly, investors in firms that are highly regulated, are non-high-tech, have high levels of physical assets and are perceived as having low potential growth opportunities will on average, be less negatively affected if management does issue a profit warning. Finally, the earlier the warning is made compared to the reporting period's end, the greater management's willingness to make a second warning and the fact that the warning is in regard to annual earnings all suggest a less negative reaction.

An interesting extension to this research would be to assess market reaction on the basis of how accurate management's earnings forecast via the profit warning is in comparison to the actual earnings report when it is eventually made. It would also be quite interesting to compare the impact on share price reaction to the actual earnings report for firms that do warn, to firms with similarly negative earnings that do not issue the warnings. Finally,

Imhoff (1978) concludes that management earning forecasts (via profit warnings) may not be representative of the forecast accuracy which non-forecasting firms might report if forecasts were required by law. In essence, the issue is if there might be benefits from increased accuracy (or other factors) if all firms were required to publish warnings?

## References

- Baginski, S.P., J.M. Hassell and D.M. Kimbrough, (2002), "The Effect of Legal Environment on Voluntary Disclosure: Evidence from Management Earnings Forecasts Issued in U.S. and Canadian Markets," *The Accounting Review* 77, (1): 25-50.
- Bird, R.A. (2000), "Global Perspective of Analysts' Earnings Forecasts," *Journal of Investing* 9, (Winter, 4): 76-82.
- Brown, D., L. Higgins and N. Huong, (2001), "Managing Earnings Surprises in the U.S. versus 12 other Countries," *Journal of Accounting and Public Policy* 20, (4-5): 373-398.
- Chambers, A.E. and S.H. Penman, (1984), "Timeliness of Reporting and the Stock Price Reaction to Earnings Announcements," *Journal of Accounting Research* 22, (1): 21-47.
- Chen, C.R. and N.J. Mohan, (1994), "Timing the Disclosure of Information: Management's View of Earnings Announcements," *Financial Management* 23, (3): 63-69.
- Chopra, N., J. Lakonishok and J.R. Ritter, (1992), "Measuring Abnormal Performance: Do Stocks Overreact?" *Journal of Financial Economics* 31, (2): 235-268.
- Cowan, A.R., (1992), "Nonparametric Event Study Tests," *Review of Quantitative Finance and Accounting* 2: 343-58.
- Cox, C.T., (1985), "Notes: Further Evidence on the Representativeness of Management Earnings Forecasts," *The Accounting Review* 60, (4): 692-701.
- Daily Short Stories, (2002), [www.briefing.com](http://www.briefing.com) United States: Briefing.com Inc.
- Damodoran (1988)
- Damodoran, A., (1989), "The Weekend Effect in Information Releases: A Study of Earnings and Dividend Announcements," *Review of Financial Studies* 2, (4): 607-623.
- Dechow, P.M., R.G. Sloan and A. Sweeney (1996), "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC," *Contemporary Accounting Research*, June: 235-250.
- Dow Jones Interactive, (2002), [www.djinteractive.com](http://www.djinteractive.com) New York: Dow Jones & Company, Inc.
- Foster, G., (1973), "Stock Market Reaction to Estimates of Earnings per Share by Company Officials," *Journal of Accounting Research* 11, (1): 25-37.
- Frankel, R., M. McNichols and G.P. Wilson, (1995), "Discretionary Disclosure and External Financing," *The Accounting Review* 70, (1): 135-150.
- Fried and Givoly (1982)
- Griffin, P. A., Grundfest, J. A., and M. A. Perino, (2000), "Stock Price Response to News

of Securities Fraud Litigation: Market Efficiency and the Slow Diffusion of Costly Information,” Working Paper, Stanford Law School.

Hassell, J. M., R.H. Jennings, and D.J. Lasser, (1988), “Management Earnings Forecasts: Their Usefulness as a Source of Firm – Specific Information to Security Analysts,” *The Journal of Financial Research* 11, (4): 303-320.

Imhoff, E.A., (1978), “The Representativeness of Management Earnings Forecasts,,” *The Accounting Review* 53, (4): 836-850.

Jennings, R.H, (1984), “*Reaction of Financial Analysts to Corporate Management Earnings per Share Forecast,*” New York: Financial Analyst Research Foundation, Monograph No. 20.

Kasznik, R. and B. Lev, (1995), “To Warn or not to Warn: Management Disclosures in the Face of an Earnings Surprise,” *The Accounting Review* 70 (1): 113-134.

King, R., G. Pownall and G. Waymire, (1990), “Expectations Adjustment via Timely Management Forecasts: Review, Synthesis and Suggestions for Future Research,” *Journal of Accounting Literature* 9: 113-144.

Kross, W. and D.A. Schroeder, (1984), “An Empirical Investigation of the Effect of Quarterly Earnings Announcement Timing on Stock Returns,” *Journal of Accounting Research* 22, (1): 153-176.

Libby, R. and H.T. Tan, (1999), “Analysts Reactions to Warnings of Negative Earnings Surprises,” *Journal of Accounting Research* 37, (2): 415-435.

Linn, S.C. and J.J. McConnell. (1983), “An Empirical Investigation of the Impact of Antitakeover Amendments on Common Stock Prices.” *Journal of Financial Economics* 11: 361-99.

Lorek (1984)

Matsumoto, D.A., (2002), “Management’s Incentives to Avoid Negative Earnings Surprises,” *The Accounting Review* 77, (3): 483-514.

McNichols (1989)

Mendenhall and Nichols (1988)

Mensah, M.O., H.V. Nguyen and H.A. Ryan, (1996), “An Empirical Analysis of Qualitative Management Earnings Forecasts,” *Journal of Business Finance and Accounting* 23 (9-10): 1245-1265.

Norby, W.C., (1973), Disclosure of Corporate Forecasts to the Investor. *The Financial Analysts Federation*.

Patell, J.M., (1976), “Corporate Forecasts of Earnings per Share and Price Behaviour:

- Empirical Tests,” *Journal of Accounting Research* 14: 246-274.
- Penman, S.H., (1984), “Abnormal Returns to Investment Strategies based on the Timing of Earnings Reports,” *Journal of Accounting and Economics* 6, (3): 165-183.
- Penman, S.H., (1987), “The Distribution of Earnings News over Time and Seasonalities in Aggregate Stock Returns,” *Journal of Financial Economics* 18, (2): 199-228.
- Pownall G., C. Wasley and G. Waymire, (1993), “The Stock Price Effects of Alternative Types of Management Earnings Forecasts,” *The Accounting Review* 68, (4): 896-912.
- Schipper, K. and A. Smith. (1983), “Effects of Re-Contracting on Shareholder Wealth: The Case of Voluntary Spin-offs,” *Journal of Financial Economics* 12: 437-468.
- Securities Exchange Act of 1934, (2002), [www.sec.gov](http://www.sec.gov) Washington: United States Securities and Exchange Commission.
- SIC Division Structure, (1987), <http://155.103.6.10/cgi-bin/sic/sicsr5> Washington: United States Department of Labor, Occupational Safety & Health Administration.
- Skinner, D.J., (1994), “Why Firms Voluntarily Disclose Bad News,” *Journal of Accounting Research*. 32 (1): 38-60.
- Skinner, D.J., (1997), “Earnings Disclosures and Stockholder Lawsuits,” *Journal of Accounting and Economics* 23, (3): 249-282.
- Tan, H.T., R. Libby and J.E. Hunton, (2002), “Analysts’ Reactions to Earnings Preannouncement Strategies,” *Journal of Accounting Research* 40, (1): 223-246.
- Waymire, G., (1984), “Additional Evidence on the Information Content of Management Earnings Forecasts,” *Journal of Accounting Research* 22, (2): 703-718.
- Waymire, G., (1986), “Additional Evidence on the Accuracy of Analyst Forecasts Before and After Voluntary Management Earnings Forecasts,” *The Accounting Review* 61, (1): 129-142.
- Williams, P.A., (1996), “The Relation between a Prior Earnings Forecast by Management and Analyst Response to a Current Management Forecast,” *Accounting Review* 71, (1): 103-115.

## Appendix: Samples of Earnings Warning Announcements<sup>11</sup>

### June 18, 1997, Wednesday, 08:50 ET (General Statement)

SEAGATE TECHNOLOGY INC. (SEG) 41 1/2 CLOSED. If once is not enough, maybe a second *warning* in two weeks will get the message across that demand for disk drives is weak. Last night, the company announced that due to continued weakness in customer demand, primarily for its higher performance products, 4th qtr revenues, gross margins and earnings per share are not expected to be achieved. Back on June 2, the company issued its first *warning* about market conditions and demand for its high-end products. In its latest *warning*, the company said that 4th qtr revenues are now anticipated to be between \$2.0 billion and \$2.1 billion with a significant impact on earnings for the quarter. Prior to the *warning*, the company was projected to generate revenues of 6% to 10% below the \$2.5 billion reported in the fiscal 3rd qtr when it had operating earnings of \$1.01 a share. This latest *warnings* will certainly cause the stock to open lower and put additional pressure on the sector as this issue is already called to open between \$35 and \$38 a share.

### January 7, 2000, Friday, 12:04 ET (Open Interval)

W.W. Grainger Inc. (GWW) 43 1/16-2: In the case of this distributor of maintenance, repair, and operating supplies, shares of Grainger did not have a smooth run for much of last year, thus shareholders' expectations have been more conservative to begin with so that today's profit warning is only having a limited impact. Hence, the price retreat of 4.4% today is not very severe, considering by how much earnings are underperforming expectations. The Q4 earnings warning marks the second time in the past three periods that this company has experienced a shortfall in profits due to higher costs and service interruptions related to new systems installations. In the latest case, downward adjustments to inventory related to the installation of a new enterprise resource planning system is causing Q4 earnings to fall shy of market expectations by as much as 45%. Given that the First Call consensus was for a net profit of \$0.54 per share, Grainger could realize earnings of as low as \$0.30 per share.

---

<sup>11</sup> These sample announcements come from the Story Stock Section at [www.briefing.com](http://www.briefing.com)

**June 29, 1999, Tuesday, 09:25 ET (Point Projection)**

Philip Morris Companies (MO) 41 Closed: They have a temporary earnings problem, but that isn't the real problem. After the close Monday, tobacco and food company Philip Morris (MO) met with analysts, and they presented some bad news. MO said that international tobacco sales were weak, due to weak overseas economic conditions. The unit experienced a decline of 11% in the first quarter, and is expected to produce a 6% decline in the second quarter. Partly as a result of this, MO is "aiming for" 1999 earnings of \$3.30 a share, which would be slightly lower than the current consensus estimate of \$3.32 per share. So, this has to be considered bad news, and MO was trading down a couple of points on Instinet. However, MO wrapped the bad news in a number of upbeat statements. MO it preferred to accelerate the stock buyback program when possible, and that the dividend would be raised in line with earnings growth. (MO currently pays \$0.44 per quarter in dividends per share, which comes out to a solid 4.3% yield that is important to investors in this stock.) MO also said that long-term prospects are good, and that it is "a powerful company, poised for growth." The press release starts off by saying the company "Sees Earnings Per Share Growth of 11-13% for 2000 Through 2003." So, after having not met with analysts for years, the company attempts to spin the bad news around the good. They haven't gotten away with it, at least short term. But in Briefing.com's view, the reaction may be in truth be a bit overdone. Longer term, overseas tobacco sales are not the problem for this company -- the litigation issues are. MO is probably right that international problems will turn around. And, if the company manages to keep earnings rising near the 11% to 13% it projects and raises its dividend, the stock clearly has value at its current price/earnings multiple of 12 based on the 1999 earnings estimate of \$3.30 per share.

**December 14, 2000, Thursday, 18:08 ET (Closed Interval)**

Microsoft (MSFT) 52 1/8-2 3/8: Warns for Q2 which is not too surprising numerous warning from pc sector; now expects earnings of \$0.46-0.47 vs estimate of \$0.49. Revenue expected at \$6.4-6.5 bln vs previous estimate of \$6.785 bln. Targets \$1.80-1.82 for FY01 vs consensus of \$1.90. Company cited worldwide economic conditions and slowing of corporate IT spending. Suggests long term outlook still looks encouraging.



**Table 1**  
**Summary Statistics for Announcement or Firm Variables (Datasets A/B)**

This table reports summary statistics for the variables used in the research. AEPS is the consensus analyst forecast of earnings per share (EPS). MEPS is the EPS estimate given in management's profit warning. EPSD\$ is the difference between AEPS and MEPS. EPSD% equals EPSD\$ divided by share price. EPSDMV equals EPSD\$ times the total number of shares. DAYSD is the difference (in days) between the announcement day and the financial period's end. SHARES is the total number of shares outstanding five days before the announcement. MVE is the market value of equity averaged over the five days prior to the announcement. DEPRE is the value of depreciation reported in the firms' financial statement. EBIT is earnings before interest and taxes. LDEBT (TDEBT) is long-term (total) debt. INTANG is the value of intangible assets. CASSET (CLIAB) is current assets (liabilities). TASSET is total assets. BVPS is book value per share. Leverage (LEVER) equals long-term debt divided by the sum of long-term debt and market value of equity. Tobin's q (TQ) is the ratio of market value of equity to book value of equity. INTANGR is the intangible asset ratio which equals intangible assets divided by total assets. Basic earning power (BEP) is the ratio of EBIT to total assets. N is the number of observations. The variable's STD, Min and Max are the standard deviation, its minimum, and maximum values, respectively.

<b>Dataset A</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>STD</b>	<b>Min</b>	<b>Max</b>
<b>AEPS (\$)</b>	2,295	0.39	0.28	0.59	-7.18	9.95
<b>MEPS (\$)</b>	2,295	0.22	0.16	0.60	-7.65	8.00
<b>EPSD\$ (\$)</b>	2,295	0.17	0.12	0.23	0	4.76
<b>EPSD%</b>	2,295	0.02	0.01	0.05	0	1.93
<b>EPSDMV (\$m)</b>	2,295	7.41	2.39	20.63	0.01	497.50
<b>DAYSD</b>	2,295	-17.35	-6	54.79	-564	87
<b>SHARES (m)</b>	2,295	56	20	160	0.41	3,385
<b>MVE (\$m)</b>	2,295	1744	269	7923	7.06	188,145
<b>Dataset B</b>						
<b>DEPRE (\$m)</b>	1,396	211	33	962	0.1	15,949
<b>EBIT (\$m)</b>	1,409	374	49	1,481	-1919	20,624
<b>LDEBT (\$m)</b>	1,437	1,086	117	4,562	0	98,887
<b>TDEBT (\$m)</b>	1,431	1,817	150	9,585	0	165,556
<b>INTANG (\$m)</b>	1,117	1,090	104	6,347	0	96,325
<b>CASSET (\$m)</b>	1,352	1,551	264	7,162	0.01	125,521
<b>CLIAB (\$m)</b>	1,353	1,230	123.31	6,231	0.73	142,316
<b>TASSET (\$m)</b>	1,437	6,264	682	29,903	7	642,191
<b>BVPS (\$)</b>	1,435	9.78	7.59	19.84	-25.25	649.54
<b>LEVER</b>	1,437	0.29	0.22	0.28	0	0.97
<b>TQ</b>	1,396	3.33	1.92	7.84	-46.77	122.72
<b>INTANGR</b>	1,117	0.18	0.13	0.16	0	1.17
<b>BEP</b>	1,409	0.03	0.08	0.41	-6.36	1.89

**Table 2**  
**Frequency Distribution of the Number of Announcements per Firm**

This table reports the number (No.) of announcements (ANNO) made by each firm in the sample. N is the number of firms. N \* ANNO (% of Firms) then represents how many total (the percentage of the total) announcements for which a given subset accounts.

<b>No. of Announcements (ANNO)</b>	<b>Dataset A</b>			<b>Dataset B</b>		
	<b>N</b>	<b>N * ANNO</b>	<b>% of Firms</b>	<b>N</b>	<b>N * ANNO</b>	<b>% of Firms</b>
1	967	967	64.60	545	545	61.10
2	345	690	23.05	217	434	24.33
3	127	381	8.48	83	249	9.30
4	43	172	2.87	34	136	3.81
5	8	40	0.53	8	40	0.90
6	5	30	0.33	3	18	0.34
7	1	7	0.07	1	7	0.11
8	1	8	0.07	1	8	0.11
<b>Total Firms</b>	<b>1498</b>	<b>2295</b>	<b>100.00</b>	<b>892</b>	<b>1437</b>	<b>100.00</b>

**Table 3**  
**Distribution of the Profit Warning Announcements**  
**by Day-of-the-Week (Dataset A and Dataset B)**

This table reports the distribution of the announcement sample grouped by the day of week and year it was made. No. is the number of announcements. % is the No. divided by its subcategory total.

<b>Dataset A</b>	1997		1998		1999		2000		All	
	No.	%	No.	%	No.	%	No.	%	No.	%
Monday	12	0.52	132	5.76	154	6.72	169	7.37	467	20.37
Tuesday	26	1.13	135	5.89	136	5.93	219	9.55	516	22.50
Wednesday	21	0.92	101	4.40	132	5.76	208	9.07	462	20.15
Thursday	20	0.87	115	5.02	157	6.85	271	11.82	563	24.55
Friday	13	0.57	59	2.57	91	3.97	122	5.32	285	12.43
<b>Total</b>	<b>92</b>	<b>4.01%</b>	<b>542</b>	<b>23.64%</b>	<b>670</b>	<b>29.22%</b>	<b>989</b>	<b>43.13%</b>	<b>2293*</b>	<b>100.00%</b>

<b>Dataset B</b>										
Monday	5	0.35	74	5.15	76	5.29	118	8.22	273	19.01
Tuesday	12	0.84	78	5.43	85	5.92	165	11.49	340	23.68
Wednesday	10	0.70	55	3.83	73	5.08	146	10.17	284	19.78
Thursday	11	0.77	66	4.60	85	5.92	198	13.79	360	25.07
Friday	9	0.63	32	2.23	54	3.76	84	5.85	179	12.47
<b>Total</b>	<b>47</b>	<b>3.27%</b>	<b>305</b>	<b>21.24%</b>	<b>373</b>	<b>25.97%</b>	<b>711</b>	<b>49.51%</b>	<b>1436**</b>	<b>100.00%</b>

Note: \* There are 2 announcements in Dataset A that were announced on Sunday in 1999. These are not reported on this table. This reduces the total sample size from 2295 to 2293.

\*\* There is 1 announcement in Dataset B that was announced on Sunday in 1999. This is not reported on this table. This reduces the total sample size from 1437 to 1436.

**Table 4**  
**Anticipated Share Price Reponse to Profit Warning Announcements**  
**by Different Proxy Variables**

This table reports the expected relationship between market reaction to profit warnings and the proxy variables employed to test the hypotheses examined in this research. EPSD is the earning per share difference (consensus analyst EPS forecast minus the profit warning forecast) in dollars. DFRIDAY is a dummy variable (DV) equal to one if the announcement is made on Friday and zero otherwise. DAYSD is the difference (in days) between the announcement day and the financial period's end. DANNO is a DV that equals one for a firm's first warning announcement and is zero for subsequent announcements. DYRQR is a DV equal to one if the warning concerns an annual earnings report and is zero for quarterly report warnings. Tobin's q (TQ) is the ratio of market value of equity to book value of equity. DHTECH is a DV equal to one if the firm is a high-tech firm and zero otherwise. DREG is a DV equals to one if the firm is highly regulated and is zero otherwise. INTANGR is the intangible asset ratio that equals intangible assets divided by total assets. Basic earning power (BEP) is the ratio of EBIT to total assets. Leverage (LEVER) equals long-term debt divided by the sum of long-term debt and market value of equity. Expected Sign is the regression coefficient's expected sign.

<b>Hypothesis</b>	<b>Variables</b>	<b>Anticipated Results</b>	<b>Expected Sign</b>
1	<b>EPSD</b>	The larger the EPS difference, the larger the negative market reaction.	Negative
2	<b>DFRIDAY</b>	Friday announcements will lead to the least negative price decline.	Positive
3	<b>DAYSD</b>	The more positive the DAYSD, the more negative the market reaction.	Negative
3	<b>DANNO</b>	The first warning announcement will generate the most negative reaction.	Negative
3	<b>DYRQR</b>	Warnings for annual earnings will generate less negative reaction.	Positive
4	<b>TQ</b>	Firms with higher Tobin's q's will have a more negative reaction.	Negative
4	<b>DHTECH</b>	High-tech firms will have higher share price declines.	Negative
4	<b>DREG</b>	Highly-regulated firms will have lower share price declines.	Positive
4	<b>INTANGR</b>	Firms with high intangible asset ratios will generate more negative market reaction.	Negative
<b>Control</b>	<b>SIZE</b>	The larger total assets (or market value of equity) are, the smaller the expected decline	Positive
<b>Control</b>	<b>BEP</b>	Firms with higher BEP will experience less negative reaction.	Positive
<b>Control</b>	<b>LEVER</b>	Greater use of leverage will generate more negative price reaction.	Negative

**Table 5**  
**Warning Announcement Period Returns (Dataset A)**

Average and Median Abnormal Returns are from the Market Model using the Standardized Residual Method for 2295 announcements. N is the number of firm returns for a given day. Pos:Neg shows how many of the firm returns are positive or negative on a given day. Z-Stat is the parametric statistic testing for a significant difference of the average abnormal return from zero. Generalised Sign Z is the non-parametric test statistic for a significant difference from zero that considers the ratio of positive to negative returns.

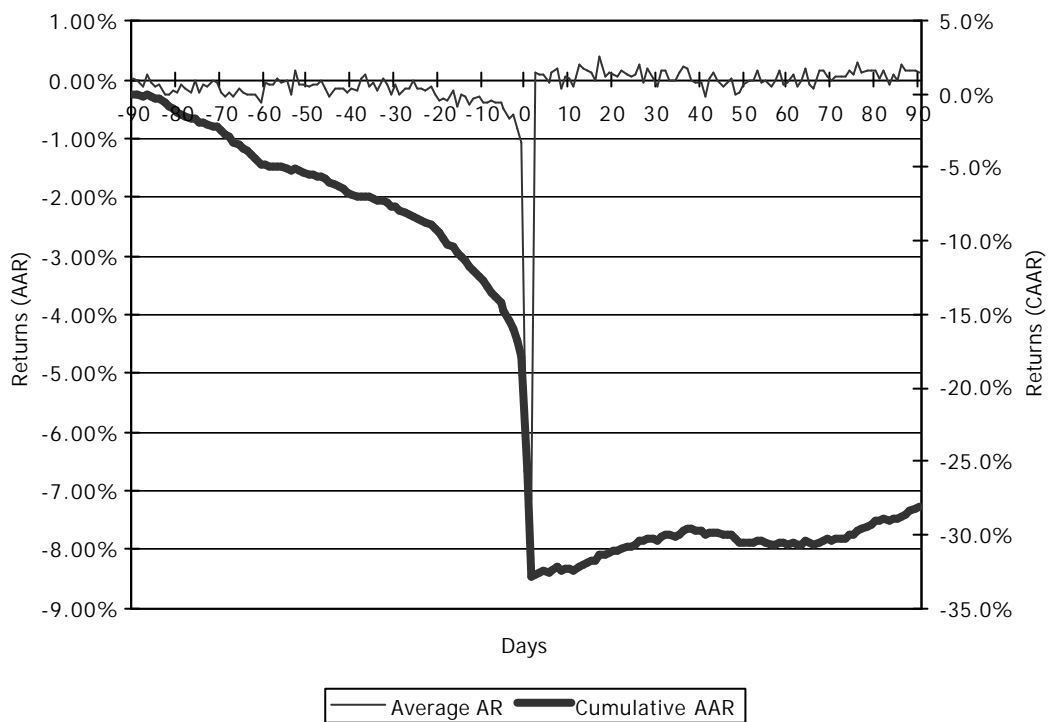
<b>Day</b>	<b>N</b>	<b>Mean AR</b>	<b>Median AR</b>	<b>Pos:Neg</b>	<b>Z-Stat</b>	<b>G Sign Z</b>
-90	2295	0.01%	-0.12%	1098:1197	-0.573	0.393
-70	2295	-0.23%	-0.24%	1055:1240	-2.064*	-1.404
-50	2295	-0.13%	-0.21%	1073:1222	-1.443	-0.652
-30	2295	-0.09%	-0.21%	1053:1242	-1.367	-1.488
-25	2295	-0.14%	-0.20%	1071:1224	-1.999*	-0.735
-20	2295	-0.34%	-0.35%	1010:1285	-4.141***	-3.285**
-15	2295	-0.24%	-0.24%	1052:1243	-2.941**	-1.530
-10	2295	-0.41%	-0.33%	1029:1266	-4.825***	-2.491*
-5	2295	-0.50%	-0.57%	950:1345	-6.167***	-5.794***
-4	2295	-0.68%	-0.56%	960:1335	-7.320***	-5.376***
-3	2295	-0.59%	-0.50%	960:1335	-6.265***	-5.376***
-2	2295	-0.84%	-0.65%	923:1372	-8.611***	-6.922***
-1	2295	-1.06%	-0.69%	912:1383	-8.454***	-7.382***
0	2295	-7.76%	-3.94%	583:1712	-27.493***	21.135***
1	2295	-7.13%	-3.39%	676:1619	-25.056***	17.248***
2	2295	0.12%	-0.23%	1088:1207	2.175*	-0.025
3	2295	0.09%	-0.27%	1078:1217	-0.121	-0.443
4	2295	0.07%	-0.22%	1069:1226	-0.021	-0.819
5	2292	-0.05%	-0.32%	1047:1245	-0.985	-1.680\$
10	2210	0.03%	-0.18%	1028:1182	0.595	-0.864
20	2137	0.10%	-0.13%	1022:1115	1.106	0.362
30	2114	-0.11%	-0.13%	1014:1100	-0.566	0.491
50	2025	-0.08%	-0.11%	968:1057	-0.641	0.333
70	1827	-0.01%	-0.19%	867:960	-0.14	0.019
90	1738	0.11%	-0.11%	843:895	0.545	0.894
<b>Days</b>	<b>N</b>	<b>Mean CAR</b>	<b>Median CAR</b>	<b>Pos:Neg</b>	<b>Z-Stat</b>	<b>G Sign Z</b>
(-1,0)	2295	-8.83%	-4.99%	593:1702	-27.925***	-20.717***
(0,+1)	2295	-14.89%	-12.50%	324:1971	-43.847***	-31.962***
(-1,+1)	2295	-15.96%	-12.88%	322:1973	-43.533***	-32.046***
(-2,+2)	2295	-16.67%	-13.58%	367:1928	-41.968***	-30.165***
(-10,+10)	2295	-19.99%	-16.91%	440:1855	-37.663***	-27.113***
(-20,+20)	2295	-21.99%	-18.54%	502:1793	-33.357***	-24.521***
(-90,-2)	2295	-16.84%	-13.75%	804:1491	-18.726***	-11.897***
(+2,+90)	2295	4.04%	4.10%	1283:1012	7.275***	8.127***
(-90,+90)	2295	-28.76%	-23.07%	786:1509	-19.512***	-12.649***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Figure 1**  
**Average Abnormal Returns and Cumulative Average Abnormal Returns**  
**for Profit Warning Announcements**

The Figure shows the relation between Days (X axis) relative to the profit warning announcement and Average Abnormal Return (Left Y axis) and to the Cumulative Average Abnormal Return (Right Y axis).

**Figure 1: Mean AR and CAAR**



**Table 6**  
**Market Reaction to the Extent of the Dollar Difference between Analyst Forecasts**  
**and Management's Warning Forecast (Dataset A)**

In Section A the returns are divided into five groups according to the earnings per share difference (EPSD\$) between the analyst earnings forecast and management's earnings profit warning in dollars. Section B reports the results for CAARs split on the basis of being above or below the median EPSD\$. N is the number of returns for a given category. CAAR is the cumulative average abnormal return. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero. Ref is a reference label.

<b>Section A</b>		<b>WINDOW (0, +1)</b>			<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Ref</b>	<b>Difference</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>1A</b>	<b>Largest</b>	459	-17.21	-21.181***	-18.36	-21.162***	3.68	2.813**
<b>1B</b>	<b>Large</b>	459	-16.57	-22.391***	-17.48	-20.492***	5.55	3.707***
<b>1C</b>	<b>Small</b>	459	-16.17	-22.114***	-17.44	-22.352***	7.03	4.755***
<b>1D</b>	<b>Smaller</b>	459	-14.43	-19.305***	-15.47	-19.869***	0.95	1.707
<b>1E</b>	<b>Smallest</b>	459	-10.10	-14.178***	-11.03	-14.440***	2.98	3.317***
<b>1F</b>	<b>(1A-1E)</b>	--	- 7.11	-29.602***	- 7.33	-30.518***	0.70	2.914**

<b>Section B</b>		<b>WINDOW (0, +1)</b>			<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
	<b>Median</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>2A</b>	<b>Above</b>	1147	-16.76	-34.368***	-17.87	-33.311***	5.22	5.560***
<b>2B</b>	<b>Below</b>	1148	-13.03	-27.917***	-14.05	-28.469***	2.86	4.710***
<b>2C</b>	<b>(2A-2B)</b>	-1	- 3.73	-24.236***	- 3.82	-24.820***	2.36	15.334***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1% and 5% level, respectively.

**Table 7**  
**Market Reaction to Warning Announcements made on Different Days of the Week (Dataset A)**

In Section A the cumulative average abnormal returns (CAARs) are divided into five groups according to the day of the week on which the profit warning announcement is made. Section B reports the results for CAARs split on the basis of being on Friday or on a non-Friday. N is the number of returns for a given category. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero.

<b>Section A</b>		<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Day of Week</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>Monday</b>	467	-16.11	-20.637***	-17.14	-19.044***	5.29	4.217***
<b>Tuesday</b>	516	-14.99	-20.270***	-16.11	-20.326***	5.45	3.795***
<b>Wednesday</b>	462	-14.03	-20.991***	-14.90	-20.323***	3.79	3.455***
<b>Thursday</b>	563	-14.84	-20.391***	-15.88	-21.296***	2.73	2.580**
<b>Friday*</b>	287	-14.23	-15.745***	-15.60	-16.341***	2.40	2.036*

<b>Section B</b>		<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Day of Week</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>Friday</b>	287	-14.23	-15.745***	-15.60	-16.341***	2.40	2.036*
<b>Non-Friday</b>	2008	-14.99	-42.781***	-16.01	-41.632***	4.27	6.925***
<b>Difference</b>	-1721	0.76	0.769	0.41	0.374	-1.87	-0.944

Note: \*There are two announcements made on Sunday. For purposes here, these two samples were included in Friday as they are similar to announcements made on Friday after market close.

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.



**Table 8**  
**Market Reaction to the Difference in Days between the Warning Announcement**  
**and the End of the Financial Reporting Period (Dataset A)**

In Section A the cumulative average abnormal returns (CAARs) are divided into five groups according to the difference between when the profit warning is announced and the date of the relevant financial period's end. Section B reports the results for CAARs split on the basis of being before or after the end of the period. N is the number of returns for a given category. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero. Ref. is a reference label.

<b>Section A</b>			<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Ref</b>	<b>Days</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>1A</b>	<b>- 30 to - 90</b>	304	-12.33	-14.537***	-12.91	-14.467***	7.05	4.887***
<b>1B</b>	<b>- 11 to - 29</b>	552	-15.05	-22.810***	-16.41	-23.346***	2.19	3.561***
<b>1C</b>	<b>- 1 to - 10</b>	384	-14.48	-17.703***	-15.98	-18.727***	2.87	2.062*
<b>1D</b>	<b>0 to 9</b>	524	-16.94	-21.775***	-18.16	-21.113***	6.52	2.548*
<b>1E</b>	<b>10 to 45</b>	407	-14.92	-18.170***	-15.31	-16.645***	1.07	2.343*
<b>1F</b>	<b>(1A-1E)</b>	-103	2.59	9.052***	2.40	8.388***	5.98	20.901***

<b>Section B</b>			<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Ref</b>	<b>Period's End</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>2A</b>	<b>BEFORE</b>	1240	-14.21	-32.193***	-15.42	-33.068***	3.59	5.896***
<b>2B</b>	<b>AFTER</b>	931	-16.06	-28.352***	-16.91	-26.826***	4.14	3.463***
<b>2C</b>	<b>Diff (2A-2B)</b>	309	1.85	11.237***	1.49	9.050***	-0.55	-3.341***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Table 9**  
**Market Reaction to Multiple Management Warning Announcements (Dataset A)**

Section A reports the cumulative average abnormal returns (CAARs) grouped on the basis of how many profit warnings were made by a given firm. Section B reports the CAAR to the first and second announcement for the 531 firms who made two announcements during the sampling period. N is the number of returns for a given category. CAAR is the cumulative average abnormal return. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero.

<b>Section A</b>		<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Times</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>1</b>	1496	-16.52	-37.737***	-17.76	-37.625***	0.51	2.610**
<b>2</b>	531	-12.47	-19.706***	-13.42	-19.659***	10.27	7.064***
<b>3</b>	185	-10.95	-11.702***	-11.18	-11.323***	11.19	4.920***
<b>4</b>	58	-12.41	-6.963***	-13.07	-6.757***	7.87	2.730**
<b>5 (or more)</b>	25	- 4.43	-2.608**	- 4.06	-2.361*	20.53	2.551*

<b>Section B</b>		<b>WINDOW (0, +1)</b>		<b>WINDOW (-1,+1)</b>		<b>WINDOW (+2,+90)</b>	
<b>Times</b>	<b>N</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>	<b>CAAR%</b>	<b>Z-STAT</b>
<b>First</b>	531	-16.14	-23.633***	-17.49	-24.015***	- 5.93	-2.982**
<b>Second</b>	531	-12.47	-19.689***	-13.43	-19.640***	10.28	7.059***
<b>Difference</b>	--	- 3.67	-16.904***	- 4.06	-18.701***	-16.21	-74.664***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Table 10**  
**Market Reaction to Warning Announcements Classified by Quarter or Year (Dataset A)**

The cumulative average abnormal returns (CAARs) are divided on the basis of whether the profit warning pertains to a quarterly or an annual earnings report. N is the number of returns for a given category. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero.

	N	WINDOW (0, +1)		WINDOW (-1,+1)		WINDOW (+2,+90)	
		CAAR%	Z-STAT	CAAR%	Z-STAT	CAAR%	Z-STAT
<b>Year</b>	124	-13.02	-9.258***	-14.17	-9.301***	7.71	3.152**
<b>Quarter</b>	2171	-15.00	-42.888***	-16.06	-42.548***	3.83	6.738***
<b>Difference</b>	-2047	1.98	6.247***	1.89	5.963***	3.88	12.241***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Table 11**  
**Tests of the Information Asymmetry Variables (Dataset B)**

This table provides results testing for significant differences between the cumulative average abnormal returns (CAARs) on the basis of variables proxying for information asymmetry. Ref is used as a reference label. N is the number of returns for a given category. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero. INTANGR is the ratio of intangible assets to total assets. Tobin's q (TQ) is the ratio of market value of equity to book value of equity. DREG is a dummy variable equal to one if the firm is highly regulated and is zero otherwise. DHTECH is the dummy variable equals to one if a firm is in a high-tech industry and is zero otherwise. Diff is the difference between the groups being compared.

Ref	Variables	N	WINDOW (0, +1)		WINDOW (-1,+1)		WINDOW (+2,+90)		
			CAAR%	Z-STAT	CAAR%	Z-STAT	CAAR%	Z-STAT	
<b>1A</b>	<b>INTANGR</b>	Below median	558	-12.80	-20.776***	-13.55	-19.647***	4.21	3.894***
<b>1B</b>		Above median	559	-13.78	-22.253***	-14.95	-22.393***	2.55	4.507***
<b>1C</b>		Other	320	-16.22	-15.759***	-17.02	-15.808***	7.33	4.046***
		Diff (1A-1B)	-1	0.98	4.780***	1.40	6.829***	1.66	8.097***
<b>2A</b>	<b>TQ</b>	Below median	698	-12.06	-21.572***	-12.65	-20.023***	8.16	6.822***
<b>2B</b>		Above median	698	-15.71	-26.039***	-16.99	-27.061***	0.55	3.061**
<b>2C</b>		Other	41	-15.90	-7.485***	-16.48	-6.521***	0.97	1.265
		Diff (2A-2B)	0	3.65	19.307***	4.34	22.956***	7.61	40.253***
<b>3A</b>	<b>DREG</b>	Regulated	187	-10.56	-11.083***	-10.67	-10.015***	4.09	2.301*
<b>3B</b>		Nonregulated	1250	-14.45	-32.506***	-15.49	-32.426***	4.28	6.732***
		Diff (3A-3B)	-1063	3.89	17.165***	4.82	21.269***	-0.19	-0.838
<b>4A</b>	<b>DHTECH</b>	Non High-Tech	1080	-12.27	-28.840***	-12.94	-28.144***	5.29	7.132***
<b>4B</b>		High-Tech	357	-19.00	-18.671***	-20.68	-18.715***	1.13	1.735
		Diff (4A-4B)	723	6.73	25.518***	7.74	29.347***	4.16	15.773***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Table 12**  
**Tests of the Control Variables (Dataset B)**

This table provides results testing for significant differences between the cumulative average abnormal returns (CAARs) on the basis of variables used to represent relevant firm characteristics. Ref. is used as a reference label. N is the number of returns for a given category. CAAR is the cumulative average abnormal return. Z STAT is the z-test statistic testing for a significant difference between the CAAR and zero. MV is the market value of equity measured five trading days average before announcement. TASSET is firm total assets. Basic earning power (BEP) is the ratio of earnings before interest and taxes to total assets. Diff is the difference.

Ref	Control Variables	N	WINDOW(0, +1)		WINDOW(-1,+1)		WINDOW(+2,+90)		
			CAAR%	Z-STAT	CAAR%	Z-STAT	CAAR%	Z-STAT	
<b>1A</b>	<b>MVE</b>	Above median	719	-13.02	-24.288***	-14.03	-25.085***	3.77	5.759***
<b>1B</b>		Below median	718	-14.87	-24.338***	-15.71	-22.542***	4.75	4.245***
		Diff (1A-1B)	1	1.85	9.790***	1.68	8.891***	-0.98	-5.186***
<b>2A</b>	<b>TASSET</b>	Above median	719	-11.08	-23.066***	-11.63	-22.250***	6.35	7.331***
<b>2B</b>		Below median	718	-16.82	-25.441***	-18.10	-25.503***	2.16	2.675**
		Diff (2A-2B)	1	5.74	30.150***	6.47	33.985***	4.19	22.009***
<b>3A</b>	<b>BEP</b>	Above median	705	-12.99	-24.551***	-14.25	-25.227***	4.76	6.452***
<b>3B</b>		Below median	704	-14.99	-23.416***	-15.75	-23.143***	3.59	3.480***
<b>3C</b>		Other	28	-11.72	-4.655***	-8.18	-2.145*	8.26	1.596
		Diff (3A-3B)	1	2.00	10.502***	1.50	7.877***	1.17	6.144***
<b>4A</b>	<b>LEVER</b>	Below median	719	-11.26	-22.080***	-11.72	-21.188***	6.31	6.884***
<b>4B</b>		Above median	718	-16.63	-26.652***	-18.02	-26.811***	2.20	3.033**
		Diff (4A-4B)	1	5.37	28.486***	6.30	33.419***	4.11	21.802***

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level, respectively.

**Table 13**

**Cross-Sectional Multivariate Regression Model Results (Dataset B)**

This table reports results from running two cross-sectional, multiple regressions that attempt to explain the cumulative average abnormal returns for firms during the profit warning announcement period. EPSD\$ is the difference between consensus analyst earnings per share forecast and the profit warning forecast. EPSD% equals EPSD\$ divided by share price. LNTA is the natural log of total assets. Basic earning power (BEP) is the ratio of EBIT to total assets. Leverage (LEVER) equals long-term debt divided by the sum of long-term debt and market value of equity. INTANGR is the intangible asset ratio equaling intangible assets divided by total assets. Tobin's q (TQ) is the ratio of market value of equity to book value of equity. N is the number of observations. DREG is a dummy variable (DV) equals to one if the firm is highly regulated and is zero otherwise. DHTECH is a DV equal to one if the firm is a high-tech firm and zero otherwise. DAYSD is the difference (in days) between the announcement day and the financial period's end. DANNO is a DV that equals one for a firm's first warning announcement and is zero for subsequent announcements. DYRQR is a DV equal to one if the warning concerns an annual earnings report and is zero for quarterly report warnings. DFRIDAY is a dummy variable (DV) equal to one if the announcement is made on Friday and zero otherwise. Par Est is the parameter estimate. VIF is the variance inflation factor. STD is the standard error corrected for heteroscedasticity.

<b>Model 1</b>						<b>Model 2</b>					
<b>Variable</b>	<b>Par Est</b>	<b>t-Test</b>	<b>VIF</b>	<b>STD</b>	<b>White Test</b>	<b>Variable</b>	<b>Par Est</b>	<b>t-Test</b>	<b>VIF</b>	<b>STD</b>	<b>White Test</b>
<b>Intercept</b>	-0.1573	-7.620***	0.0000	0.01951	-8.060***	<b>Intercept</b>	-0.1600	-7.283***	0.0000	0.02081	-7.687***
<b>EPSD\$</b>	-0.1269	-5.623***	1.0599	0.02124	-5.974***	<b>EPSD%</b>	-0.3687	-1.790	1.1906	0.22113	-1.667
<b>LNTA</b>	0.0224	3.402***	1.3867	0.00604	3.706***	<b>LNTA</b>	0.0189	2.720**	1.5050	0.00636	2.974**
<b>BEP</b>	0.0628	5.060***	1.0574	0.00896	7.000***	<b>BEP</b>	0.0642	5.080***	1.0695	0.00918	6.996***
<b>LEVER</b>	0.0313	1.620	1.5496	0.01850	1.690	<b>LEVER</b>	0.0260	1.294	1.6374	0.01934	1.345
<b>INTANGR</b>	-0.0878	-3.167***	1.1000	0.03369	-2.607**	<b>INTANGR</b>	-0.0764	-2.728**	1.0937	0.03394	-2.252**
<b>TQ</b>	-0.0002	-0.442	1.0703	0.00044	-0.537	<b>TQ</b>	-0.0002	-0.287	1.0747	0.00043	-0.362
<b>DREG</b>	-0.0017	-0.117	1.1612	0.01387	-0.125	<b>DREG</b>	-0.0081	-0.546	1.1538	0.01387	-0.585
<b>DHTECH</b>	-0.0298	-2.547**	1.3196	0.01291	-2.307**	<b>DHTECH</b>	-0.0336	-2.838**	1.3172	0.01318	-2.550**
<b>DAYSD</b>	-0.0002	-1.97*	1.7434	0.00009	-2.035*	<b>DAYSD</b>	-0.0002	-1.692	0.0909	0.00009	-1.820
<b>DANNO</b>	-0.0268	-2.943**	1.0725	0.00885	-3.031***	<b>DANNO</b>	-0.0271	-2.930**	1.0765	0.00897	-3.025**
<b>DYRQR</b>	0.0084	0.373	1.6788	0.02517	0.335	<b>DYRQR</b>	0.0056	0.244	1.6848	0.02496	0.224
<b>DFRIDAY</b>	0.0187	1.491	1.0102	0.01238	1.510	<b>DFRIDAY</b>	0.0152	1.194	1.0084	0.01274	1.190
<b>Regression Summary Statistics</b>	F Value = 12.25*** R-Square = 0.1217 Adj R-Sq = 0.1117 N = 1075					F Value = 9.63*** R-Square = 0.0982 Adj R-Sq = 0.0880 N = 1075					

\*\*\*, \*\*, and \* indicate significance at the 0.1%, 1%, and 5% level respectively.