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**THE INFLUENCE OF CHANGE IN DISPERSION IN
ANALYSTS' FORECASTS ON THE
EARNINGS RESPONSE COEFFICIENT**

BY

GORDON M. COHN

A dissertation submitted to the Graduate Faculty in Business
in partial fulfillment of the requirements for the degree of
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1 Introduction

1.1 Synopsis

The dissertation examines how change in dispersion in analysts' forecasts --hereafter ΔD -- is an *ERC* --earnings response coefficient-- determinant. Two competing hypotheses are examined. The first hypothesis predicts that ΔD is a positive determinant of *ERC* and the second hypothesis predicts that ΔD is a negative determinant of *ERC*.

Hypothesis (1) suggests that ΔD can be used to measure the importance of the earnings surprise *UE*. As ΔD becomes larger, the accompanying *UE* is expected to be more important to investors. Due to ΔD measuring the importance of *UE*, *CAR* is expected to be positively associated with '*UE X ΔD* '. The Hypothesis is based on the following theory:

UE, the earnings surprise perceived by the market, is proxied for by the forecast error. The forecast error is the difference between the mean forecast and announced earnings. Researchers discuss how announced earnings contain relevant information as well as noise. Forecast error is a better

proxy for UE to the degree that the announced earnings contain value relevant information.

Furthermore, it is expected that the larger is the 'true' UE in an announcement, the greater is analysts' disagreement regarding its significance. More information generates more opinions. Greater disagreement causes a bigger ΔD . Based on the above, Hypothesis (1) predicts the sign on the regression coefficient for the ' $UE \times \Delta D$ ' variable to be positive. ΔD measures the earnings surprise's importance when it is combined with UE .

Hypothesis (1) is supported by Dontoh and Ronen's (1993) theory. Dontoh and Ronen contend that ΔD is an alternative measure of earnings announcement information content. Heretofore, accounting studies have measured an announcement's impact by examining changes in price and trading volume. However, according to Dontoh and Ronen, the magnitude of ΔD also measures an announcement's impact. They claim that a UE which is accompanied by a larger ΔD has different implications for the stock market than a UE with a smaller ΔD .

Hypothesis (2) is based on Kim and Verrechia's (1991) - hereafter KV- model. KV claim that there is a stronger stock price response to earnings announcements whose information is more precise. Previous research demonstrates that dispersion in analysts' forecasts is an inverse measure of earnings information quality. Based on KV and the previous research, ΔD is hypothesized to be a negative *ERC* component.

A linear regression model tests the hypotheses. Cumulative abnormal return --hereafter *CAR*-- is regressed onto unexpected earnings --hereafter *UE*, ΔD , the interaction variable '*UE X ΔD* ' and control variables. *UE* is the earnings surprise. It is the difference between the actual and forecasted earnings. Two sample populations are examined. One looks at the ΔD for annual forecasts around the annual earnings announcement date. The second investigates ΔD of annual forecasts around quarterly announcement dates.

The dissertation's results are statistically significant and consistent in both samples. A negative association is found between *CAR* and both ΔD and *UE*. The relationship between *CAR* and '*UE X ΔD* ' is positive. The last finding confirms Hypothesis (1).

Five contributions are made in this research. One, a new *ERC* determinant is developed. Two, ΔD is shown to measure the importance of the earnings surprise. Three, evidence is brought for the hypothesis that ΔD is a measure of information content. Four, this is the first study to demonstrate a negative association between the *CAR* and ΔD around an earnings announcement. This result gives support to those researchers who claim that dispersion in analysts' forecasts is a measure of risk. Five, this dissertation uses the I/B/E/S (Institutional Brokers' Estimate System) detail tapes to calculate ΔD . Most previous research has used the I/B/E/S summary tapes. The summary tapes include stale forecasts and therefore have limited usefulness for calculation of ΔD around an accounting event. As a result of including only recent forecasts for determining ΔD , more statistically significant statistics are obtained.

The first contribution, developing a new determinant of the *ERC*, is important for several reasons. First, many accounting research studies examine *ERC*. Finding a new determinant will improve the specifications of the models used in this research. Second, an improved understanding of the *ERC* can help financial analysts make better predictions regarding the stock market reaction to earnings

announcements. Finally, managers desire to control the impact of their earnings announcements. Gaining a better understanding of the factors which influence *ERC* provides managers with a tool for obtaining better control.

Showing that there is a statistically significant relationship between *CAR* and ΔD is also important to *ERC* researchers. It demonstrates that a properly specified linear regression model should include ΔD as an independent variable.

1.2 Introduction to theoretical model

KV model the stock price reaction to earnings information. This dissertation uses their model to develop new determinants of *ERC*. A brief introduction to the *KV* model is presented below. A more detailed description appears in Appendix I.

There are three elements in the *KV* model:

- (1) the stock price response around an earnings announcement,

(2) the information's relative reliability (the degree, relative to previous information, that the current earnings information accurately indicates earnings potential), and,

(3) the announcement's earnings surprise or unexpected earnings (the level of unanticipated information gained from the earnings announcement).

$$\Delta P = \frac{n}{K_2} \times UE \quad (1)$$

where:

ΔP	=	Abnormal stock price change surrounding the earnings announcement,
$\frac{n}{K_2}$	=	Relative reliability of earnings announcement information,
n	=	Precision of current earnings information,
K_2	=	Precision of past earnings information,
UE	=	Earnings surprise.

The intuition underlying Equation (1) is as follows. As the current earnings information becomes relatively more precise, it is weighted more heavily as compared to previous information. This added weight causes a stronger price response.

The *ERC* is defined as $\frac{n}{K_2}$. ΔD is used as an inverse proxy for $\frac{n}{K_2}$. The paper tests whether *ERC* increases (decreases) when an earnings announcement is accompanied by a decrease (increase) in ΔD .

ΔD is based on variation in the dispersion in analysts' forecasts of the next period's annual earnings immediately before and after this period's annual earnings announcement. For example, suppose that the 1995 earnings announcement is published on March 1, 1996. The dispersion in analysts' forecast for 1996 earnings is examined for February 1996 and March 1996. An increase (decrease) in dispersion is attributed to the 1995 earnings information being more (less) precise than previous information.

1.3 Organization of the Dissertation

Section (2) presents an overview of the literature on which the dissertation's hypotheses are built. Section (3) presents the dissertation's hypotheses. Hypothesis (1) examines whether a larger ΔD indicates that the market pays more attention to *UE*. Hypothesis (2) tests whether change in dispersion in analysts' forecasts around an earnings announcement is a measure of firm-specific relative

precision. According to Hypothesis (1) ΔD is a positive determinant of *ERC* and according to Hypothesis (2) a negative one. Section (4) describes how the hypotheses are tested. Section (5) explains the methodology for obtaining variables. Section (6) discusses the research design and results and summarizes the principal conclusions.

2 Prior Research

The dissertation builds on several areas of prior research. First, researchers have shown that higher quality earnings information is associated with larger *ERCs*. However, while these studies consider the higher precision effect, they do not examine the improvement in precision influence on *ERC*. This dissertation adds to the previous research by investigating the existence of an improvement in information precision effect on *ERC*.

Second, studies have linked dispersion in analysts' forecasts with factors related to the level of earnings information precision. Based on these studies, dispersion in analysts' forecasts is used as a measure of precision in the *KV* model.

Third, studies have shown dispersion in analysts' forecasts to measure the level of risk. The dissertation examines whether ΔD proxies for change in risk level.

Fourth, Beaver (1968) claims any indication that investors change their opinions implies that an announcement has information content. Thus, according to Beaver, ΔD around an earnings announcement should be a measure of information content. Furthermore, Donto and Ronen (1993) have constructed a theoretical model which shows that ΔD measures information content.

Fifth, several researchers have examined the connection between ΔD and the trading volume reaction to earnings news. Studies which examine the relationship between ΔD and trading volume have methodological shortcomings and mixed results. This is one of the first studies to look at ΔD and the price reaction. According to KV's model, it is more appropriate to link ΔD to price reaction. The dissertation demonstrates how ΔD is a determinant of the price response to earnings announcements. It also shows that changes in dispersion in analysts' forecasts content is a measure of announcement information content.

2.1 Higher levels of earnings information precision and quality associated with larger *ERC*.

Several studies examine how the level of price response to an earnings announcement is a function of variables which are related to earnings information precision and quality. Lang and McNichols (1990) investigate whether the market reacts more to earnings information which is accompanied by a larger cash flow. Their hypothesis is based on the widely held opinion that accounting earnings are higher quality when they are accompanied by higher cash flows. However, they do not find that cash flow levels affect the market's response to earnings information. They attribute their results to the market's confidence in the way accounting earnings are determined.

Lipe (1990) and Collins and Kothari (1989) show that the price response is directly correlated with the time series persistence of earnings.¹ In addition to the above, Collins and Kothari (1989) substantiate that *ERC* is a decreasing function of the systematic risk facing a firm. As discussed in Section (3), according to KV, more risk is associated with less precise earnings information.

¹ They assume that the time series follows an ARIMA (2,1,0) and ARIMA(0,1,1) process respectively.

The relationship between dispersion in analysts' forecasts and *ERC* is examined by Imhoff and Lobo (1992). They claim that dispersion may be a measure of either earnings uncertainty or of imprecise earnings information. If dispersion measures earning uncertainty, it will be positively correlated with *ERC*; if it measures imprecise earnings information, it will be negatively correlated with *ERC*. They find a negative relationship and conclude that dispersion is a proxy for imprecise earnings information.

Teoh and Wong (1993) --hereafter TW-- regress *CAR* unto level of auditor quality and *UE*. They find a larger *ERC* for firms which use a Big-Six auditor. They claim the relationship is due to Big-Six audit firms producing higher quality audits.

2.2 Dispersion in analysts' forecasts' relation to earnings information precision and level of risk facing a firm.

As discussed above, Imhoff and Lobo (1992) link dispersion in analysts' forecasts and earnings information quality. Using a different methodology, Goss (1991) attempts to link earnings information quality to dispersion in analysts' forecasts. First she develops several measures for determining earnings information quality. She then

establishes that under certain circumstances there is a relationship between these measures and dispersion in analysts' forecasts. However, her study shows mixed results.

Several researchers claim that dispersion in analysts' forecasts is a function of factors related to the firm's risk level. Daley et al. (1988) find a positive relationship between dispersion in analysts' forecasts and the standard deviation of future returns as implied by an option pricing model. Friend, et al. (1978) compare beta, the residual variance using the market model, and dispersion in analysts' forecasts to predict future variances in returns. They find dispersion to be the best predictor of variances in returns. Similarly, Givoly and Lakonishok (1983) found a correlation between dispersion in analysts' forecasts and beta and the standard deviations of returns. Gunderson (1992) associates more dispersion in analysts' forecasts with lower equity values. He attributes his findings to the connection between lower equity value and more risk.

2.3 Change in dispersion in analysts' forecasts.

Heretofore, ΔD has been examined as a determinant of the trading volume level. Studies have not linked ΔD to the price reaction to an earnings announcement. According to KV, an examination of the connection between ΔD and ΔP is more

appropriate than the connection to a change in trading volume. KV's model implies that ΔP is a direct function of ΔD . Trading volume is a function of ΔP . Thus, trading volume is a function of ΔD only through its relationship to ΔP .

All of the studies which focused on trading volume and ΔD have significant limitations. Lang et al. (1992) use the absolute value of ΔD . However, according to KV a decrease in ΔD produces a stronger volume reaction while an increase in ΔD produces a weaker reaction. The differences in these two effects were not identified in the Lang study. Ziebart (1990) shows a connection between trading volume and ΔD . However, his regression has been criticized for not also including the effect of a more influential determinant of trading volume - the absolute level of dispersion in analysts' forecasts [Barron (1995), Atiase and Bamber (1990) and Bamber and Cheon (1995)].

Barron (1995) examines the volume reaction through including both the absolute and relative levels of dispersion in analysts' forecasts. He finds significant results for the absolute level of dispersion in analysts' forecasts and not for ΔD . Barron's study is based on Karpoff's (1986) model. He claims that according to Karpoff,

the absence of a connection between trading volume and ΔD is not surprising. Karpoff's theory does not provide a basis for linking trading volume and ΔD .

This dissertation and Barron (1995) are among the first which compute ΔD using detail rather than summary tapes.

Detail tapes have the advantage of eliminating stale forecasts. In particular, for the calculation of a change in variable around an earnings announcement, it is important to differentiate between data from immediately before and immediately after the announcement. Accurate measurements for ΔD cannot be calculated if the summary tapes are used.

According to Dontoh and Ronen (1993) it is also appropriate to see if there is a relationship between ΔD and the price reaction to earnings news. Dontoh and Ronen demonstrate the change in heterogeneity of investors' opinions around an earnings announcement is a measure of information content not reflected in the price and volume reaction. Dontoh and Ronen do not focus on what is the implication of ΔD being a measure of earnings information content. This study regresses CAR onto ΔD and ' $UE \times \Delta D$ ', and, thus, helps provide insights into the importance of observing changes in heterogeneity of investors' opinion.

In a recent study L'Her and Suret (1996) report finding a negative association between CAR and ΔD . This dissertation differs from L'Her and Suret in several ways. First, it uses the detail rather than summary tapes. This provides a more precise measurement of ΔD . Second, L'Her and Suret calculate CAR and ΔD on a monthly basis. They do not provide an explanation for the changes in dispersion in analysts' forecasts and CAR . This dissertation determines CAR for a three-day window around earnings announcements. ΔD is calculated for a thirty-day window around earnings announcements. The focus on changes in CAR and ΔD which are attributed to earnings announcements increases the dissertation's relevance to accounting. Finally, L'Her and Suret do not include ' $UE \times \Delta D$ ' in their regression. This dissertation on the other hand, regresses CAR unto ΔD , UE , and ' $UE \times \Delta D$ '. It examines the association CAR and the interaction of UE and ΔD as well as the separate influences of the UE and ΔD variables on CAR .

3 Testable Predictions

Hypothesis 1 -- A change in the level of dispersion in analysts' forecasts from before to after an earnings announcement is positively correlated with ERC.

Dontoh and Ronen (1993) demonstrate that the change in heterogeneity of investors' opinions around an earnings announcement is a measure of information content not reflected in price and volume reaction. Dontoh and Ronen do not focus on the implication of ΔD being a measure of earnings information content. Hypothesis (1) predicts that a larger ΔD is associated with a bigger *ERC*. The association is due to ΔD measuring the importance of *UE* to the market. A measurement of the importance of *UE* is necessary due to measurement error in its calculation.

Accounting studies calculate *UE* as the difference between the median analysts' forecasts and the actual announcement value. Researchers note that there are two reasons for measurement error in *UE*. First, the lack of timeliness and value-irrelevant noise in earnings cause the earnings number announced by a company to lack precision [Collins et al. (1994)]. Second, the analysts' forecasts on

the I/B/E/S summary (or detail) tapes which are used to calculate UE can be too outdated to represent the market's expectation immediately before the earnings announcement. Even a forecast dated one week (or less) before the announcement may not represent the market's expectation immediately before the announcement.

Hypothesis (1) predicts that when UE is accompanied by a larger ΔD , its value is more important to the stock market. Furthermore, UE measures forecast error. The greater the forecast error, the more new information analysts receive from an earnings announcement. To the extent that analysts acquire new information, they are more likely to make different interpretations regarding its significance. It is expected that more important UE value is accompanied by a larger ΔD .

In order to test Hypothesis (1) the dissertation tests whether for a given UE , a larger (smaller) ΔD is associated with a larger (smaller) ΔP .

Hypothesis 2 -- A change in the level of dispersion in analysts' forecasts from before to after an earnings announcement is negatively correlated with ERC.

The basis for Hypothesis (2) is KV's Equation (1) presented earlier:

$$\Delta P = \frac{n}{K_2} \times UE \quad (1)$$

ERC is defined as:

$$ERC = \frac{d(\Delta P)}{d(UE)}$$

Therefore, based on Equation (1):

$$ERC = \frac{n}{K_2} \quad (2)$$

$\frac{n}{K_2}$ is the relative value of current earnings information. Its value is always positive. Thus, from Equation (1), ΔP increases (decreases) more for a larger (smaller) UE . Furthermore, as current earnings information becomes more (less) precise, $\frac{n}{K_2}$ increases (decreases) and ΔP reacts more to UE .

The dissertation uses the above relationship to test if changes in dispersion in analysts' forecasts proxies for

earnings announcement information's relative precision.

$\frac{n}{K_2}$ increasing (decreasing) is proxied by level of dispersion in analysts' forecasts decreasing (increasing). When ΔD increases (decreases) ΔP is expected to increase (decrease).

ΔD is an appropriate proxy for the relative precision of earnings announcement information. Two factors contribute to make earnings information more precise. One relates to information quality. Higher quality earnings information is more representationally faithful and neutral. It better portrays a company's earnings potential.

Two, higher precision of earnings is related to the predictability of a company's earning potential. Higher quality earnings information is more useful when firms face fewer economy-wide or firm-specific uncertainties. Under conditions of uncertainty, expected earnings potential is a function of an outside factor's predictions regarding how external uncertainties will be resolved. Earnings information is considered in light of risk factors. Thus, earnings information released by a company facing more risk is, *ceteris paribus*, less precise.

Section (2.2) discussed how the level of dispersion in analysts' forecasts is correlated with both returns uncertainty and earnings information quality. The change in dispersion in analysts' forecasts around an earning announcement can be attributed to announcement information. It measures the perceived information accuracy as well as the extent the information resolves outside uncertainties. Thus, ΔD proxies for the level of earnings announcement information precision.

In order to test Hypothesis (2) the dissertation tests whether for a given UE , a smaller (larger) ΔD is associated with a larger (smaller) ΔP .

4 Methodology for Testing the Hypotheses

The dissertation's research methodology is based on the regression used by TW. TW regress ΔP onto a proxy for earnings information precision and control for other factors which effect *ERC*. Similarly, this dissertation regresses ΔP onto a proxy for change in earnings information precision (ΔD) and controls for other relevant factors. Using TW's (1993) methodology, the dissertation substitutes its earnings information proxy into TW's (1993) regression equation and investigates the relative precision effect.

The regression equation for examining ΔD is:

$$\begin{aligned}
 CAR_{it} = & \lambda_0 + \lambda_1 UE_{it} + \lambda_2 \Delta D_{it} + \lambda_3 MB_{it} + \lambda_4 \beta_{it} + \lambda_5 MV_{it} + \lambda_6 N_{it} \\
 & + \lambda_7 UE_{it} \Delta D + \lambda_8 UE_{it} MB_{it} + \lambda_9 UE_{it} \beta_{it} \\
 & + \lambda_{10} UE_{it} MV_{it} + \lambda_{11} UE_{it} N_{it} + \epsilon_{it} \quad (3)
 \end{aligned}$$

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_{it} = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- λ_i = regression coefficient for each variable,
- ϵ_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$.

5 Measurement of variables in the dissertation

5.1 Measuring Dispersion in Analysts' Forecasts

Dispersion in analysts' forecasts:

$$D = \frac{\sigma_F}{\text{Mean Forecast}} \quad (4)$$

where:

σ_F = The standard deviation in analysts' forecasts in any given month.

The numerator is scaled by the mean forecasts in order to make the dispersion term comparable across firms. As in previous studies, mean forecasts close to zero are eliminated due to the metric's sensitivity to small denominators [Pincus (1983) and O'Brien (1988)]. The analysts' forecast data is obtained from the I/B/E/S detail tapes.

Change in dispersion in analysts' forecasts -- ΔD -- is the difference in the value of D from the month after to before the forecast.

$$\Delta D = D_{t+1} - D_t$$

where:

t = the month before an earnings announcement.

5.2 *Proxy for Earnings Surprises*

TW's (1993) methodology for determining UE based on analysts' forecasts is used:

$$UE = \frac{EPS_{actual} - EPS_{forecast}}{Price} \quad (5)$$

Any observations where $|UE| > 100\%$ are dropped in order to avoid including observations which have an undue influence on the regression estimates (TW).

5.3 *Measuring Abnormal Price Change.*

CAR is the unexpected stock return which is derived from the market model. It is commonly used in accounting research as a measure for ΔP . The expected return is computed from:

$$R_{it} = a_i + b_i R_{mt} + e_{it} \quad (6)$$

where:

R_{it} = return for firm i on day t ,
 R_{mt} = return on CRSP value-weighted market index on day t ,
 e_{it} = a stochastic disturbance term,
 a_i and b_i = intercept and slope coefficient for firm $_i$.

The coefficient b_i is an ordinary least square estimate using 100 weekly returns based on days -202 to -3 before the earnings announcement. Weekly returns are established by combining five consecutive daily returns. Once b_i is established, a_i is calculated using daily returns. It is based on the equation:

$$a_i = b_i \bar{R}_{it} - \bar{R}_{mt} \quad (7)$$

CAR is equal to the sum of the residuals in Equation (6) for a three-day window around the earnings announcement day.

6 Research Design and Results

6.1 Introduction

KV theorize that there is a stronger stock price response to earnings announcements whose information is more precise. This dissertation uses KV's theory to develop a new determinant for the *ERC* -- ΔD . Employing a linear regression, it regresses *CAR* onto *UE*, the interaction variable *UE X ΔD* and control variables. The control variables are discussed in Section (6.3). ΔD is an inverse proxy for change in information's relative precision.

An example of a typical data point follows: A firm is included in the study when at least 30 analysts on the I/B/E/S detail tape in the period from 1989 - 1994 are following it. According to Morse et al. (1991) there is a 20% chance of an analyst revising his/her forecast in a given month. If 30 analysts follow a firm there is a reasonable chance that 4 new or updated forecasts can be found in a given month [Baron (1995)].

A principal component of the study's analysis uses standard deviations of analysts' forecasts. Data points are included only if standard deviations for the relevant

analysts' forecasts can be properly determined. The dissertation considers four forecast as the minimum number necessary for computing a reliable standard deviation estimate [Barron (1995)]. Thus, an announcement date is chosen if there are four forecasts in the month prior and in the month subsequent to the announcement.

For example, IBM has more than 30 analysts following it between 1989 - 1994. It announces its 1990 annual earnings on March 31, 1991. There are at least four current analysts forecasts made for the 1991 annual earnings in March 1991 and four new forecasts for these earnings in April. Thus, this point is included in the study.

Sometimes firms release several quarterly earnings announcements simultaneously on the same day. Under this circumstance it is difficult to determine the composite *UE*. Thus, these observations are deleted from the study.

A forecast is classified as current and is used for March if it was made for the first time or verified by I/B/E/S as still applying. However, only new and not verified forecasts are used for April. This requirement increases the probability that the post announcement standard deviation of analysts' forecasts is based on forecasts compiled after the announcement. For comparison,

the regressions were also performed if either a revised or new forecast is available for the month after the forecast.

The standard deviation in analysts' forecast is measured for the pre and post announcement forecasts. The difference in the two standard deviations is ΔD . ΔD is standardized in order to make it comparable across firms. As in other studies, ΔD is divided by the median forecast in the month before the earnings announcement [Ziebart (1990)]. Small denominator problems are reduced by dropping observations where the value of the median forecast is less than less .2 [Bamber and Cheon (1995)].²

The average of the 1990 annual earnings forecasts issued in March 1991 is used to establish the market's expectation for the March 31 announcement. The difference between the expectation and IBM's actual announced EPS is the UE . Christie (1987) and Kormendi and Lipe (1987) suggest that stock price is the appropriate value for standardizing UE . Consistent with above studies, the price of IBM on

² Average dispersion in analysts's forecasts was used as an alternative standardization of difference in dispersion. The regression results are similar. The average was equal to the sum of the pre and post announcement dispersion divided by 2.

March 31, 1991 is used to standardize *UE*.³ Analysts' forecasts rather than a time-series model based on previous earnings levels is used for estimating the expected earnings level. Analysts' forecasts are shown to be better approximations for investors' expectations since they include more recent information [Brown et al. 1985].

CAR is the change in the stock price that is attributed to earnings announcement information. Since the exact timing of the information release is not definite, it is calculated for a three-day window centered on March 31, the earnings announcement day [Espahbodi et al. 1991]. The equation used for *CAR* is:

$$CAR_{it} = \prod_{t=ad-1}^{t=ad+1} (1 + R_{it} - \hat{\alpha}_{it} - \hat{B}_{it} \times R_{mt}) \quad (8)$$

³ In most cases the stock price on the day of the earnings announcement is available from the CRSP tapes. In the few places where it is not, the year end stock price is taken from the COMPUSTAT tapes. Comparable results were found when median forecast value was used to standardize *UE* [Bamber (1987)].

where:

ad = earnings announcement day
 i = firm i
 R_{it} = firm i's return from day t
 R_{mt} = market return for day t
 β_t, α_t = parameters estimated from a firm-specific time series regression of the firm return on the market return for 2 years prior to the announcement date.

The dissertation collects data points such as the one described above and uses them to regress CAR onto UE, ΔD , 'UE x ΔD ', and control variables. The equation used is:

$$CAR = B_0 + B_1 UE + B_2 \Delta D + B_3 UE \Delta D + CV \quad (9)$$

where:

CV = control variables

The parameter estimate for the 'UE X ΔD ' variable captures the degree that the combination of the quantity -- UE-- and change in quality -- ΔD -- of unexpected earnings influences CAR. A t test is performed on the parameter estimate. Hypothesis (1) is supported if the parameter is positive and the t test is statistically significant. Similarly, Hypothesis (2) is supported if the parameter is negative.

In order to control for outliers, regressions are run with the principal variables windsorized at the 1% level. These variables include ΔD , UE , and CAR . Windsorizing deletes the top and bottom 1% of observations from the sample for any given variable. Therefore, in this study depending on how much the extreme values for ΔD , UE , and CAR overlap, windzorizing can delete up to 6% of observations. A log value is also used for CAR as an alternative methodology for minimizing the effect of outliers. Since the use of the log value minimizes the impact of outliers, when using the log, CAR 's value is not windsorized.

A binary measure is used for the control variables due to the possibility of non-linearity and the influence of outliers (TW). The binary measure also reduces noise from mismeasurement. The control variables are given a value of 1 when they are above the mean and zero otherwise. Since the binary measurement is used, care must be given when interpreting parameters that include these variables. For the purpose of comparison, regressions are also run without windsorizing and the use of the binary measure. The dissertation looks at two different samples. They are:⁴

⁴ Due to small sample size, quarterly forecasts samples were not examined.

1. The subsequent period annual forecasts around annual earnings announcements. -- For example, the change in the 1991 annual forecasts around the 1990 annual earnings announcement. After windsorizing and using only observations where the necessary data is available from all sources, 723 announcement dates are in this sample. 267 different firms and 19,745 forecasts are included in this sample. Before windsorizing this sample contains 763 observations.

2. The current period annual forecasts around quarterly earnings announcements. -- For example, the change in the 1991 year end annual forecasts around the 1991 first quarter earnings announcement. After windsorizing and using only observations where the necessary data is available from all sources, 403 announcement dates are in this sample. These announcements are from 241 different firms. A combination of 14,742 analysts' forecasts is used to calculate ΔD for these 403 announcements. Before windsorizing 424 observations are in this sample.

6.2 Sources of data

All data are taken from the four-year period 1989-1993. As in other studies, only firms with 12/31 financial cycles are included [Ajinka et al. (1991) and Atiase and Bamber (1994)]. This constraint insures that all forecast horizons

are the same. Four sources of data are used for the dissertation:

1. Detailed I/B/E/S (Institutional Brokers' Estimate System) data. This data base provides individual forecasts for all analysts in the I/B/E/S data base. Each forecast is dated according to the day it was received by I/B/E/S.⁵ I/B/E/S usually give a second confirmation with the forecast. This is a later date when I/B/E/S confirms that an analyst still agrees with his/her earlier forecast.

2. Summary I/B/E/S data provides information regarding the number of analysts following a firm during a given period.

3. CRSP (Center for Research into Security Prices) daily returns files furnish daily market and individual stock returns and stock prices.

4. Annual files of the COMPUSTAT tapes provide information regarding firm market, book value and price information when the latter are not available on the CRSP tape.

⁵ In a telephone conversation, an I/B/E/S analyst claimed that for the period in this study, all forecasts were released to the public from 0 to 3 days before the date given in the I/B/E/s data base.

6.3 Control Variables

Control variables are added to the model in Equation (1) to insure proper specification. The control variables chosen were significant in previous studies. They measure growth and persistence, risk, firm size, and pre-announcement information available to the market. As explained subsequently, these variables are determinants of the *ERC*. The control variables appear in the regression equation in two places. They are used separately as intercept terms. They are also included as interaction terms with *UE*. The interaction terms identify the degree that the variable influences the *ERC*. By including these terms, the dissertation shows that the interaction term $\Delta D \times UE$ adds explanatory power to the *ERC*. This explanatory power is not provided by variables identified in previous studies.

The control variables are:

The ratio of the market to book value of equity -- *MB* - proxies the market's view of a firm's growth opportunities [Collins and Kothari (1989)]. A higher ratio indicates that the market expects greater earnings growth. Parameter estimates for '*MB X UE*' are predicted to be positive. There is more likely to be higher *UE* for a firm for which the

market has higher earnings expectations. *MB*'s value is based on the stock price, book value and number of common shares at the beginning of the year in which an observation occurs.

Market value --*MV*-- is the value of common stock. It is a proxy for predisclosure environment and possible omitted variables [Atiase (1985)]. More predisclosure information is available for larger firms. Studies have mixed results regarding the importance of firm size to *ERC*. Easton and Zmijewski (1989) find firm size to be unimportant. Lipe (1990) finds it marginally significant.

Number of analysts following a firm -- *N*-- is another measure of firm predisclosure environment. Dempsey (1989) claims that *N* is a better proxy than *MV*. *TW* did not find *N* to be a principal determinant of *ERC*. *MV* and *N* are expected to be highly correlated. Due to previous studies' mixed results, the parameter estimates of both '*MV X UE*' and '*N X UE*' are uncertain.

β measures the level of firm-specific risk.

Furthermore, since *KV* equate earning uncertainty with lack of earnings information precision, β is also an inverse measure of earnings information precision. Thus, β controls

for the absolute level of earnings information precision before the announcement.

β 's value is determined by performing a time-series firm specific regression of weekly stock return on the weekly market return. Using weekly rather than daily returns give a more stable β estimate [Handa et al. (1993)]. Collins and Kothari (1989) find that there is a negative relationship between β and ERC. They explain that their findings indicate a negative relationship between ERC and risk. However, TW hypothesize that information has more value to firms which face more prior uncertainty. According to this theory, there will be a positive relationship between ERC and β . Because of the conflicting theories, no prediction is made regarding the relationship between ERC and β .

Table 1

Expected Signs on Independent Regression Variable
Coefficients

Independent Variable	Sign
UE earnings surprise	+
ΔD change in dispersion in analysts' forecasts	-
UE * ΔD	Hypothesis 1: + Hypothesis 2: -
MV market value	?
N number of analysts	?
MB market to book ratio	+
β beta	?

6.4 Discussion of Results

Appendix II presents the values of the regression variables for all observations in the dissertation. Table (2) gives descriptive summary statistics for the regression variables. Panel (A) is the statistics for the annual announcement sample and (B) for the quarterly announcements. It is expected that annual announcements have more impact than the quarterly ones on changes in dispersion in the annual forecasts. Annual earnings information has more relevance to annual forecasts than does quarterly information. The data supports the expectation. In both panels the mean and median of ΔD are close to zero. However, in Panel (A) for annual forecasts the standard deviation of ΔD is .239 while in Panel (B) the standard deviation is .195 --approximately 20% less.

Table 2
Descriptive Statistics for Regression Variables

Panel A: N = 766

Annual Forecasts Surrounding Annual Earnings Announcements

	CAR	UE	ΔD	β	N	MV	MB
Max	1.26	0.135	1.553	2.97	42	78401	7.840
Mean	1.00	-0.001	-0.040	1.02	20	5877	0.761
Med	1.00	0.000	-0.013	1.02	19	3567	0.724
Min	0.75	-0.152	-4.357	-0.58	4	76	0.018
SD	0.04	0.164	0.239	0.51	8	10829	0.881

Definition of variables:

CAR = Summation of abnormal return for 3-day window around earnings announcement,

UE = earnings surprise as measured by forecast error,

ΔD = change in dispersion in analysts' forecasts around earnings announcement day,

β = market model slope coefficient as a proxy for firm risk,

N = number of analysts' forecasts included in the I/B/E/S consensus annual forecast as a proxy for predisclosure environment,

MV = market value in millions as a proxy for firm size,

MB = market value to book value as a proxy for growth and persistence.

Table 2

Descriptive Statistics for Regression Variables

Panel B: N = 424

Annual Forecasts Surrounding Quarterly Announcements

	CAR	UE	ΔD	β	N	MV	MB
Max	1.77	0.116	0.741	2.82	26	68854	6.775
Mean	1.00	-0.001	-0.023	1.07	11	6879	0.864
Med	1.00	0.000	-0.007	1.08	10	3133	0.634
Min	0.71	-0.076	-2.290	-0.31	2	70	0.165
SD	0.05	0.009	0.195	0.48	5	9232	0.842

Definition of variables:

CAR = Summation of abnormal return for 3-day window around earnings announcement,

UE = earnings surprise as measured by forecast error,

ΔD = change in dispersion in analysts' forecasts around earnings announcement day,

β = market model slope coefficient as a proxy for firm risk,

N = number of analysts' forecasts included in the I/B/E/S consensus quarterly forecast as a proxy for predisclosure environment,

MV = market value in millions as a proxy for firm size,

MB = market value to book value as a proxy for growth and persistence.

There are considerably more unexpected earnings (*UE*) in the annual earnings sample. This finding is consistent with the claim of Collins et al. (1984) that analysts' forecasts errors are larger for the fourth quarter than any other quarter.⁶ In both panels of Table (2) the mean and median of *UE* are approximately zero. However, in the annual panel the standard deviation is .164 while in the quarterly panel it is only .009. Since *UE* is a key variable in the regression and is close to zero for many of the observations, one should be cautious regarding inferences from the quarterly announcement data's regressions.

It should also be noted, that except for the variable *MV* (market value), the means and medians of the variables are approximately the same value. This is an indication that the data is normally distributed. In particular the mean and medians of the study's three principal variables *CAR*, *UE*, and *AD*. are within 1% of each other.

Table (3) presents the pairwise Pearson correlations for the independent variables which are used in the study's

⁶ The only new information which comes out in the annual earnings announcement is the fourth quarter earnings. Therefore, the forecast error in predicting the fourth quarter earnings should be similar to the error in predicting the annual ones.

regression. Panel (A) examines the variables for annual forecasts around annual earnings announcements. Panel (B) examines the variables for annual forecasts around the quarterly earnings announcements. Panel (C) looks at the correlations for the control variables interacting with ' $UE \times \Delta D$ '. It is based on the annual forecasts around the annual announcement sample. Since the correlations for the annual forecasts around the quarterly announcement sample are similar, they are not presented.

Table 3

Pairwise Pearson Correlations for Regression Variables
(Two tailed Probability Values *Italicized*)

Panel A: N = 766

Annual Forecasts Surrounding Annual Earnings Announcements

	UE					
UE	1.000					
	<i>0.000</i>					
		ΔD				
ΔD	0.089	1.000				
	<i>0.017</i>	<i>0.000</i>				
			β			
β	-0.023	0.124	1.000			
	<i>0.534</i>	<i>0.001</i>	<i>0.000</i>			
				N		
N	0.051	0.103	-0.022	1.000		
	<i>0.172</i>	<i>0.006</i>	<i>0.546</i>	<i>0.000</i>		
					MV	
MV	0.039	0.050	-0.093	0.560	1.000	
	<i>0.230</i>	<i>0.178</i>	<i>0.012</i>	<i>0.000</i>	<i>0.000</i>	
						MB
MB	0.060	0.026	-0.013	0.071	0.157	1.000
	<i>0.108</i>	<i>0.486</i>	<i>0.729</i>	<i>0.056</i>	<i>0.000</i>	<i>0.000</i>

Definition of variables:

- UE = earnings surprise as measured by forecast error,
 ΔD = change in dispersion in analysts' forecasts around earnings announcement day,
 β = market model slope coefficient as a proxy for firm risk,
N = number of analysts' forecasts included in the I/B/E/S consensus quarterly forecast as a proxy for predisclosure environment,
MV = market value in millions as a proxy for firm size,
MB = market value to book value as a proxy for growth and persistence.

Table 3
 Pairwise Pearson Correlations for Regression Variables
 (Two tailed Probability Values *Italicized*)

Panel B: N = 424

Annual Forecasts Surrounding Quarterly Earnings Announcements

	UE					
UE	1.000					
	<i>0.000</i>					
		ΔD				
ΔD	-0.180	1.000				
	<i>0.000</i>	<i>0.000</i>				
			β			
β	0.037	-0.115	1.000			
	<i>0.454</i>	<i>0.021</i>	<i>0.000</i>			
				N		
N	0.026	-0.046	0.226	1.000		
	<i>0.608</i>	<i>0.359</i>	<i>0.000</i>	<i>0.000</i>		
					MV	
MV	-0.069	0.039	0.047	0.414	1.000	
	<i>0.169</i>	<i>0.440</i>	<i>0.345</i>	<i>0.000</i>	<i>0.000</i>	
						MB
MB	-0.021	0.103	0.007	0.166	0.077	1.000
	<i>0.677</i>	<i>0.039</i>	<i>0.882</i>	<i>0.001</i>	<i>0.123</i>	<i>0.000</i>

Definition of variables:

- UE = earnings surprise as measured by forecast error,
 ΔD = change in dispersion in analysts' forecasts around earnings announcement day,
 β = market model slope coefficient as a proxy for firm risk,
 N = number of analysts' forecasts included in the I/B/E/S consensus quarterly forecast as a proxy for predisclosure environment,
 MV = market value in millions as a proxy for firm size,
 MB = market value to book value as a proxy for growth and persistence.

Table 3
 Pairwise Pearson Correlations for Regression Variables
 (Two tailed Probability Values *Italicized*)
 Panel C: N = 766
 Annual Forecasts Surrounding Annual Earnings Announcements
 for Interaction Variables

	UE					
UE	1.000					
	<i>0.000</i>					
		UE* β				
UE* β	0.891	1.000				
	<i>0.000</i>	<i>0.000</i>				
			UE*N			
UE* N	0.927	0.839	1.000			
	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>			
				UE*MV		
UE*MV	0.486	0.294	0.610	1.000		
	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>		
					UE*MB	
UE* MB	0.742	0.601	0.659	0.398	1.000	
	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	
						UE* Δ D
UE* Δ D	-0.492	-0.506	-0.366	-0.077	-0.546	1.000
	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.040</i>	<i>0.000</i>	<i>0.000</i>

Definition of variables:

UE	= earnings surprise as measured by forecast error,
Δ D	= change in dispersion in analysts' forecasts around earnings announcement day,
β	= market model slope coefficient as a proxy for firm risk,
N	= number of analysts' forecasts included in the I/B/E/S consensus quarterly forecast as a proxy for predisclosure environment,
MV	= market value in millions as a proxy for firm size,
MB	= market value to book value as a proxy for growth and persistence.

Certain correlations are noteworthy. In Panels (A) and (B) the correlation between β and ΔD is negative and statistically significant. This relationship indicates that for higher risk firms, earnings announcements generate more heterogeneity in analysts' forecasts. This relationship is consistent with TW. TW explain that high β firms have more uncertainties regarding future cash flows. Based on Holthausen and Verrechia (1988) they theorize that earnings announcements reduce uncertainties more for high risk firms. The negative correlation between β and ΔD provides support to TW's theory.

In Panels (A) and (B) both MV (market value) and MB (market to book) are positively correlated with N (number of analysts following a firm on I/B/E/S summary tape). The correlation is statically significant. This result supports Bhushan's (1989) theory. Bhushan claims that the size of analysts' following is a function of the degree earnings information is relevant to investors. A larger firm has more investors. Thus, firm size and analysts' followings are positively associated. Furthermore, a bigger MB ratio indicates that the market expects greater growth and larger profits. The firms with larger ratios have more investor interest. Therefore, there is a positive correlation between MB and N . The correlation coefficients are larger for the

association between ΔD and firm size than for that between ΔD and MB . The stronger association indicates that firm size is a more precise measure of investor interest than MB .

Panel (C) shows the correlations between the interaction terms ' $UE \times \beta$ ', ' $UE \times \Delta D$ ', ' $UE \times MV$ ', ' $UE \times MB$ ' and, ' $UE \times N$ '. All coefficients are large in absolute value and highly statistically significant. The existence of large correlation coefficients indicates that there are multicollinearity problems when these variables are included together in a regression. It limits the inferences which can be drawn from the regressions in Part (1) of Table (4). Since the multicollinearity problem exists, for comparative purposes all panels in Table (4) include parts (2) and (3). These sections have fewer multicollinearity difficulties since they do not include interaction terms ' $UE \times \beta$ ', ' $UE \times MV$ ', ' $UE \times MB$ ' and, ' $UE \times N$ '.

Table (4) presents the regressions performed for the study. The regression models are based on the one used by TW. The following equations are used in the dissertation's regressions:

OLS Regression CARs on Earnings Surprises and Control
Variables Excluding Interaction Terms for Control Variables
with ΔD and UE

$$\begin{aligned}
 CAR_{it} = & \lambda_0 + \lambda_1 UE_{it} + \lambda_2 \Delta D_{it} + \lambda_3 MB_{it} + \lambda_4 \beta_{it} + \lambda_5 MV_{it} + \lambda_6 N_{it} \\
 & + \lambda_7 UE_{it} \Delta D + \lambda_8 UE_{it} MB_{it} + \lambda_9 UE_{it} \beta_{it} \\
 & + \lambda_{10} UE_{it} MV_{it} + \lambda_{11} UE_{it} N_{it} + \epsilon_{it} \quad (10)
 \end{aligned}$$

OLS Regression CARs on Earnings Surprises and ΔD

$$CAR_{it} = \lambda_0 + \lambda_1 UE_{it} + \lambda_2 \Delta D_{it} + \lambda_3 UE \Delta D_{it} + \epsilon_{it} \quad (11)$$

OLS Regression CARs on Earnings Surprises

$$CAR_{it} = \lambda_0 + \lambda_1 UE_{it} + \epsilon_{it} \quad (12)$$

where:

i	=	firm i ,
t	=	time period t ,
CAR_{it}	=	cumulative abnormal return i , for a 3 day window around the earnings announcement day,
UE_{it}	=	earnings surprise,
ΔD_{it}	=	change in dispersion in analysts' forecasts around earnings announcement day,
MB_i	=	market value to book value as a proxy for growth and persistence,
β_{it}	=	market model slope coefficient as a proxy for firm risk,
MV_{it}	=	market value as a proxy for firm size,
N_{it}	=	number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
ϵ_{it}	=	error term assumed to be distributed $n(0, \sigma_i^2)$,
λ_i	=	regression coefficient for each variable.

The principal regression results are presented in Panels (A) through (J) below. These panels comprise both sample groups. They contain results from performing the same regression while slightly changing the research design. The changes in the design are performed to determine if different research techniques significantly alter the dissertation's findings.

Table 4 Panel A:

Annual Forecasts Surrounding Annual Earnings
Announcement Using Binary Measurement and Windsorizing
F-statistic= 3.788, 0.0001 $R^2_{adj}=0.0480$ N = 721

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.007	315.277	0.000
UE	0.643	1.129	0.259
ΔD	-0.058	-2.802	0.005
β	-0.001	-0.467	0.641
N	-0.002	-0.512	0.609
MV	-0.005	-1.419	0.156
MB	-0.005	-1.539	0.124
UE* ΔD	3.584	2.735	0.006
UE* β	-0.185	-0.589	0.556
UE*N	-0.009	-0.354	0.723
UE*MV	0.000	1.118	0.264
UE*MB	0.660	1.375	0.170
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.001	623.667	0.000
UE	0.594	3.091	0.002
ΔD	-0.061	-2.955	0.003
UE* ΔD	3.063	2.566	0.011
Part 3: Regression of CAR onto UE			
Intercept	1.002	654.062	0.000
UE	0.305	1.773	0.077

where:

i = firm i ,
 t = time period t ,
 CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
 UE_{it} = earnings surprise,
 ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
 MB_i = market value to book value as a proxy for growth and persistence,
 β_{it} = market model slope coefficient as a proxy for firm risk,
 MV_{it} = market value as a proxy for firm size,
 N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
 e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
 λ_i = regression coefficient for each variable.

Table 4 Panel B:

Annual Forecasts Surrounding Annual Earnings Announcement
 Not Using Binary Measurement and Winsorizing
 F-statistic= 3.336, 0.0002 $R^2_{adj}=0.0343$ N = 721

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.007	186.716	0.000
UE	0.378	0.695	0.487
ΔD	-0.063	-2.984	0.003
β	-0.002	-0.55	0.579
N	-0.000	-0.076	0.939
MV	-0.000	-0.556	0.579
MB	-0.004	-2.583	0.010
UE* ΔD	2.813	2.178	0.030
UE* β	0.086	0.299	0.765
UE*N	-0.005	-0.211	0.833
UE*MV	0.000	0.395	0.693
UE*MB	0.461	0.983	0.326
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.001	620.364	0.000
UE	0.540	3.160	0.002
ΔD	-0.064	3.071	0.002
UE* ΔD	2.347	2.011	0.045
Part 3: Regression of CAR onto UE			
Intercept	1.002	651.930	0.000
UE	0.311	2.083	0.038

where:

- i = firm i,
- t = time period t,
- CAR_{it} = cumulative abnormal return i, for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel C:

Annual Forecasts Surrounding Annual Earnings Announcement
Using Binary Measurement, Windsorizing, and Log CAR Value
F-statistic= 5.556, 0.0001 $R^2_{adj}=0.0639$ N = 734

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability $> t $
Part 1:			
Intercept	0.008	2.167	0.031
UE	0.725	1.120	0.263
ΔD	-0.072	-3.027	0.003
β	-0.003	-0.819	0.413
N	-0.002	-0.619	0.536
MV	-0.003	-0.762	0.447
MB	-0.009	-2.460	0.014
UE* ΔD	5.734	3.864	0.000
UE* β	0.273	0.763	0.446
UE*N	-0.044	-1.563	0.119
UE*MV	0.000	1.216	0.225
UE*MB	1.592	2.936	0.003
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	-0.001	-0.403	0.687
UE	0.931	4.266	0.000
ΔD	-0.073	-3.073	0.002
UE* ΔD	3.878	2.826	0.005
Part 3: Regression of CAR onto UE			
Intercept	0.001	0.699	0.485
UE	0.580	2.950	0.003

where:

- i = firm i,
- t = time period t,
- CAR_{it} = cumulative abnormal return i, for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel D:
 Annual Forecasts Surrounding Annual Earnings Announcements
 Using Binary Measurement and Not Winsorizing
 F-statistic= 5.085, 0.0006 $R^2_{adj}=0.0281$ N = 766

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.009	272.121	0.000
UE	-0.560	-1.589	0.113
ΔD	-0.031	-3.579	0.000
β	-0.002	-0.668	0.504
N	-0.031	-0.691	0.490
MV	-0.003	-0.704	0.482
MB	-0.006	-1.744	0.082
UE* ΔD	0.418	2.392	0.017
UE* β	0.046	0.226	0.822
UE*N	0.012	0.711	0.477
UE*MV	0.000	0.401	0.688
UE*MB	1.393	3.197	0.001
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.001	560.692	0.000
UE	0.047	0.407	0.684
ΔD	-0.032	-3.734	0.000
UE* ΔD	0.473	2.839	0.005
Part 3: Regression of CAR onto UE			
Intercept	1.002	565.741	0.000
UE	-0.050	-0.463	0.643

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- ϵ_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel E:
 Annual Forecasts Surrounding Annual Earnings Announcements
 Using Larger Sample for ΔD
 F-statistic= 1.582, 0.0986 $R^2_{adj}=0.0064$ N = 991

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.009	392.161	0.000
UE	0.064	0.189	0.850
ΔD	-0.007	-1.012	0.312
β	-0.000	-0.174	0.862
N	-0.002	-0.540	0.590
MV	-0.004	-1.111	0.267
MB	-0.006	-2.352	0.019
UE* ΔD	0.547	1.117	0.264
UE* β	-0.101	-0.411	0.681
UE*N	0.012	0.613	0.540
UE*MV	0.000	0.495	0.621
UE*MB	0.060	0.154	0.878
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.003	766.242	0.000
UE	0.171	1.393	0.164
ΔD	-0.005	-0.757	0.449
UE* ΔD	0.684	1.482	0.139
Part 3: Regression of CAR onto UE			
Intercept	1.003	783.474	0.000
UE	0.171	1.396	0.163

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel F:
 Annual Forecasts Surrounding Annual Earnings
 Announcements Using Kim and Verrechia Definition of ΔD
 F-statistic= 3.788, 0.0001 $R^2_{adj}=0.0408$ N = 721

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.007	315.277	0.000
UE	0.643	1.129	0.259
ΔD	-0.058	-2.802	0.005
β	-0.000	-0.467	0.641
N	-0.000	-0.512	0.609
MV	-0.005	-1.419	0.589
MB	-0.005	-1.539	0.124
UE* ΔD	3.584	2.735	0.006
UE* β	-0.185	-0.589	0.556
UE*N	-0.009	-0.354	0.723
UE*MV	0.000	1.118	0.264
UE*MB	0.660	0.375	0.170
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.001	623.667	0.000
UE	0.594	3.091	0.002
ΔD	-0.061	-2.955	0.003
UE* ΔD	3.064	2.566	0.011
Part 3: Regression of CAR onto UE			
Intercept	1.002	650.062	0.000
UE	0.305	1.773	0.077

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel G:
 Annual Forecasts Surrounding Quarterly Earnings Announcement
 Using Binary Measurement and Winsorizing
 F-statistic= 3.749, 0.0001 $R^2_{adj}=0.0700$ N = 402

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	1.003	252.809	0.000
UE	3.087	2.442	0.015
ΔD	-0.097	-2.454	0.015
β	0.008	2.054	0.041
N	-0.007	-1.574	0.116
MV	-0.004	-0.976	0.330
MB	0.003	0.701	0.484
UE* ΔD	4.944	1.119	0.264
UE* β	-0.720	-1.025	0.306
UE*N	-0.056	-0.539	0.590
UE*MV	0.000	0.163	0.871
UE*MB	0.143	0.128	0.898
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.002	483.715	0.000
UE	1.783	4.180	0.000
ΔD	-0.090	-2.392	0.017
UE* ΔD	9.387	3.717	0.000
Part 3: Regression of CAR onto UE			
Intercept	1.002	490.065	0.000
UE	0.690	2.566	0.011

where:

- i = firm i,
- t = time period t,
- CAR_{it} = cumulative abnormal return i, for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel H:
 Annual Forecasts Surrounding Quarterly Earnings Announcement
 not Using Binary and Windsorizing
 F-statistic = 3.451, 0.0001 $R^2_{adj} = 0.0629$ N = 402

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	0.999	160.140	0.000
UE	2.960	2.331	0.020
ΔD	-0.087	-2.205	0.028
β	0.009	1.901	0.058
Nest	-0.000	-0.872	0.384
MV	-0.000	-0.543	0.587
MB	0.000	0.062	0.951
UE* ΔD	5.849	1.321	0.187
UE* β	-0.679	-0.967	0.334
UE*Nest	-0.042	-0.400	0.690
UE*MV	0.000	0.204	0.839
UE*MB	0.001	0.001	0.999
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.002	483.715	0.000
UE	1.783	4.180	0.000
ΔD	-0.089	-2.392	0.017
UE* ΔD	9.387	3.717	0.000
Part 3: Regression of CAR onto UE			
Intercept	1.002	490.065	0.000
UE	0.690	2.566	0.011

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- ϵ_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel I:
Annual Forecasts Surrounding Quarterly Earnings Announcement
using Binary, Windsorizing, and Log Value for CAR
F-statistic= 4.487, 0.0001 $R^2_{adj}=0.0855$ N = 410

Variable	Parameter Estimate	t for H_0 (parameter = 0)	Probability > t
Part 1:			
Intercept	0.003	0.592	0.554
UE	2.825	1.898	0.059
ΔD	-0.086	-1.839	0.067
β	0.006	1.265	0.207
Nest	-0.005	-0.830	0.407
MV	-0.004	-0.787	0.432
MB	-0.000	-0.044	0.965
UE* ΔD	17.229	3.464	0.001
UE* β	0.913	1.119	0.264
UE*Nest	-0.150	-1.221	0.223
UE*MV	-0.000	-0.455	0.649
UE*MB	1.825	1.420	0.157
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	0.001	0.471	0.638
UE	2.678	5.458	0.000
ΔD	-0.093	-2.085	0.038
UE* ΔD	13.997	4.745	0.000
Part 3: Regression of CAR onto UE			
Intercept	0.001	0.222	0.825
UE	1.053	3.254	0.000

where:

- i = firm i ,
- t = time period t ,
- CAR_{it} = cumulative abnormal return i , for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

Table 4 Panel J:
 Annual Forecasts Surrounding Quarterly Announcements
 using Binary and not Winsorizing
 F-statistic= 2.481, 0.0051 $R^2_{adj}=0.0371$ N = 423

Variable	Parameter Estimate	t for H_0 parameter = 0)	Probability > t
Part 1:			
Intercept	1.003	212.747	0.000
UE	1.071	1.071	0.285
ΔD	-0.008	-0.558	0.577
β	0.010	1.984	0.048
Nest	-0.006	-1.065	0.288
MV	-0.004	-0.716	0.474
MB	0.001	0.216	0.829
UE* ΔD	-0.547	-1.236	0.217
UE* β	-0.696	-1.294	0.196
UE*Nest	0.004	0.053	0.958
UE*MV	0.000	0.399	0.690
UE*MB	2.547	2.120	0.035
Part 2: Regression of CAR onto UE, ΔD and UE* ΔD			
Intercept	1.002	414.830	0.000
UE	0.602	2.214	0.027
ΔD	-0.003	-0.232	0.817
UE* ΔD	-0.242	-0.569	0.570
Part 3: Regression of CAR onto UE			
Intercept	1.002	420.469	0.000
UE	0.672	2.777	0.006

where:

- i = firm i,
- t = time period t,
- CAR_{it} = cumulative abnormal return i, for a 3 day window around the earnings announcement day,
- UE_{it} = earnings surprise,
- ΔD_{it} = change in dispersion in analysts' forecasts around earnings announcement day,
- MB_i = market value to book value as a proxy for growth and persistence,
- β_{it} = market model slope coefficient as a proxy for firm risk,
- MV_{it} = market value as a proxy for firm size,
- N_{it} = number of analysts' forecasts included in the I/B/E/S consensus forecast as a proxy for predisclosure environment,
- e_{it} = error term assumed to be distributed $n(0, \sigma_i^2)$,
- λ_i = regression coefficient for each variable.

The dissertation assumes that windsorizing the three principal variables *CAR*, *UE*, and ΔD and using binary measures for the control variables produces the most reliable results. This procedure minimizes the effect of outliers. Using a binary measure means that the variable takes on a value of 1 if it is above the median and 0 if it is below. An alternative technique is also employed for eliminating outliers. A log value is used for *CAR* and it is not windsorized. TW used the log value for *CAR*.

In order to determine the significance of imposing the windsorizing and binary value, the regression is rerun two times. Each time a different restriction is lifted. First, the true rather than binary value of the control variables is used. Second, the regression is performed without windsorizing *CAR*, *UE*, and ΔD .

The dissertation defines dispersions in analysts' forecasts based on Equation (4) which was presented above:

$$D = \frac{\sigma_{\text{Forecast}}}{\text{Mean Forecast}} \quad (4)$$

Therefore: $\Delta D = D_{t+1} - D_t$.

where:

t = the month before an earnings announcement.

One problem with using the above definition is that it is not congruent with KV's model. KV describe the change in precision as the change in relative precision. Expressing ΔD as a change in relative precision in a way that is consistent with KV yields:

$$\Delta D = \frac{\sigma_{t+1} - \sigma_t}{(\sigma_{t+1} + \sigma_t)/2} \quad (13)$$

where:

σ_t = dispersion in analysts' forecasts based on the forecasts issued in the month preceding the earnings announcement.

The Equation (4) definition of ΔD yielded more consistent results than Equation (13). It is also consistent with the definition for dispersion in analysts' forecasts which is used in other research [Ziebart (1990)]. Therefore, this definition is the principal one which is used in the dissertation. KV's based definition is used in Panel (F) as an example of an alternative methodology. This definition provided similar results.

ΔD measures change in dispersion in analysts forecasts which occur as a result of the earnings announcement. In Section (6.1) it was mentioned that the dispersion in analysts' forecasts after the earnings announcement was based only on new forecasts which were received after the announcement. Forecasts from before the announcement which I/B/E/S confirmed after the announcement as still being current were not included. Since these forecasts were originally made before the earnings announcement, they are considered to be stale in terms of forecasts issued after the announcement. These earlier forecasts were not formulated based on the earnings announcement information. In order to examine the results of including the confirmed after the announcement forecasts, the regression was rerun including them. The results appear in Panel (E).

The adjusted R^2 's in all regressions are generally between 3% and 9%. This is better than the average range reported by Lev (1989) in a survey of earnings studies (between 1% and 5% in most studies).

It should be noted that in Panels (D) and (J) when CAR , UE and ΔD are not winsorized and Panels (B) and (H) when a binary measure is not used for the control variables, that the adjusted R^2 's fall. The lower adjusted R^2 is due to

including outliers in the sample. The adjusted R^2 is also much lower in Panel (E) when stale forecasts are included in the post announcement forecast sample. From the weaker results in Panel (E) is seen a disadvantage of using summary tapes to calculate ΔD around an accounting event [Barron (1995)]. The stale forecasts in the summary tapes limit them as a source for calculating ΔD and provide less significant results.

The F-statistics for the goodness-of-fit are generally significant at the .001 level. These results indicate that the dissertation's regressions are well specified. When using the non-windsorized sample the significance of the F-statistic decreases. Again it is seen from these results that outliers weaken a model's fit. Similarly in Panel (E) when the stale forecasts are in the sample, the value of the F-statistic decreases. Since Panel (E) does not use the theoretically appropriate values to calculate ΔD and has poor results, its values are not included in the discussion of the dissertation's results. Likewise, in the quarterly sample, Panel (J) has a lower adjusted R^2 and F-statistic. The weaker results are due to Panel (J) including outliers. Since the dissertation considers the statistics to be more valid when outliers are eliminated, Panel (J)'s values are not discussed in this section.

Panels (A) and (G) present results from performing the primary regression for the annual and quarterly announcement groups. In these tables the principal variables CAR , UE , and ΔD are winsorized. The control variables are measured using a binary measure.

In Part (2) of these panels, as in most of the panels in the study, UE and ' $UE \times \Delta D$ ' have positive parameter estimates and are significant at the .01 confidence level. ΔD on the other hand is negative and also significant at the .01 confidence level. Panel (D), a non-winsorized sample is the only table where UE is not significant. Again this demonstrates a disadvantage of not winsorizing. Outliers cause parameter estimates to have less significant values.

Looking at other panels in this study, ΔD is significant at .01 in all panels (or close to .01) except for Panel (I) where it is significant at the .04 level. ' $UE \times \Delta D$ ' is also significant at the .01 level in all panels except Panel (B) where it is significant at the .05 level. Thus, it is seen from Part (2) of the panels that the variables UE , ΔD , and ' $UE \times \Delta D$ ' all have a robustly significant association with CAR .

In Part (1) of the panels all variables maintain the same signs. However, *UE*'s estimate becomes not statistically significant in all of the annual earnings announcement panels. On the other hand it is significant at the .05 level in the quarterly earnings announcement samples. *AD* maintains a .01 significance in all of the annual panels and Panel (G) of the quarterly panels. '*UE X AD*' is significant at the .05 level in all of the annual panels and in Panel (I) of the quarterly ones. In Panels (A), (C), and (I) it is significant at the .006 level.

The four control variables, β , *N*, *MV*, and *MB* appear in two places in the regression. A parameter is estimated for their individual effect. Another parameter is shown for their joint effect with *UE*. In Section (6.3) it was discussed how *MB* was the only control variable with an unambiguous effect on the *ERC*. Consistent with that discussion, *MB* is the only control variable whose parameter estimate for its interaction term, '*UE X MB*', was statistically significant. In Panels (C) and (D) the parameter estimate for '*UE X MB*' is positive and significant at the .003 level.

The dissertation's finding a positive association between *CAR* and *UE* has already been well documented. The negative association between *CAR* and ΔD was also discovered by L'Her and Suret (1996). However, as mentioned previously, this dissertation differs from their study on a number of dimensions. First, L'Her and Suret calculate *CAR* and ΔD on a monthly basis. This dissertation determines *CAR* and ΔD for a three-day window and thirty-day window respectively around the earnings announcements. The focus on changes in *CAR* and ΔD which are attributed to earnings announcements increases the dissertation's relevance to accounting. Second L'Her and Suret do not include '*UE X ΔD* ' in their regression. This dissertation also considers the effect of the interaction term. The fact that the parameter estimate for '*UE X ΔD* ' is statistically significant indicates that the term should be included in a properly specified model. Third, L'Her and Suret used the I/B/E/S summary tapes for calculating ΔD . By using the detail tapes the dissertation determines a more precise ΔD . As a result of the more precise ΔD the dissertation's parameter estimates in Part (2) of Table (4) for most variables are significant at the .01 level. L'Her and Suret on the other, despite the fact that they had a much large sample size, 16,000 observations, report

significance levels for similar parameter estimates at the .05 level.

The finding that the parameter estimate for ' $UE \times \Delta D$ ' was statistically significant and has a positive sign supports Hypothesis (1) and causes a rejection of Hypothesis (2). It appears that after an earnings announcement, the degree of surprise rather level of earnings precision is a more important factor when examining ΔD 's interaction with UE .

The study's results indicate that the value of ΔD can be used as a verification of the importance of the calculated UE . A more significant UE will have a large ΔD . The findings support Donto and Ronen's (1993) theory that ΔD is an alternative measure of earnings announcement information content.

6.5 Conclusion

The dissertation used a linear regression equation to determine ΔD 's impact on ERC . ΔD was hypothesized to have two possible impacts. One, it could measure the greater surprise effect and be positively correlated with ERC . Second, it might capture the decrease in precision effect and be negatively correlated to ERC . A regression was performed on two samples. In both samples it was found that ΔD was positively and significant correlated with ERC . Thus, it is concluded that ΔD is a component of ERC and captures the greater surprise effect.

A negative association between CAR and ΔD was also found. Researchers have shown that risk is inversely related to stock price [Pratt (1964)]. Section (2.2) discussed how researchers found that dispersion in analysts' forecasts proxies for risk facing a firm. The negative association in this study was attributed to ΔD , when it is a separate variable, proxying for increased risk. It supports those researchers' claims that dispersion in analysts' forecasts is a measure of risk.

MB was the only control variable which when combined with *UE* had a statistically significant value for its parameter estimate. This finding is consistent with *MB* being the only control variable which previous research agrees on the direction of its influence on the *ERC*.

ΔD 's strong association with *CAR* and the *ERC* has implications for researchers, financial analysts and managers. Researchers should include the ΔD variable in *ERC* studies. In order for their linear regressions to be properly specified, the variable should be considered as both an independent variable and *ERC* determinant.

Financial analysts should consider the level of ΔD when predicting future stock price movements. A larger ΔD indicates a lower expected return. It also suggests a stronger price reaction to an earnings surprise. These sometimes opposite effects should be understood.

Finally, managers should analyze the ΔD around earnings announcement. In order for their companies to have greater returns, they should minimize ΔD 's value by maximizing earnings information precision. The size of ΔD can be used

to indicate at what level the market considers the relative precision of a company's earnings information. However, managers should also realize that a larger ΔD can imply a stronger reaction to forecast error, rather than information imprecision. This reaction can be beneficial to a company with positive earnings news. Managers need to recognize these contradictory ramifications.

Appendix I --- Introduction to Kim and Verrechias's model.

KV's model covers three time periods. During these periods a risky and riskless asset are traded. The assets are designated x_i and E_i respectively. Trading occurs in period 1 and 2 and consumption occurs in period 3. The aggregate amount of the risky endowment is normally distributed with mean 0 and precision (inverse of variance) t and is calculated as:

$$x = \int_0^1 x_i di \quad (14)$$

\bar{u} is used in the model to designate the return on the risky asset which will be realized in period 3. \bar{u} is normally distributed with mean \bar{u} and precision h . Traders are risk adverse and possess a negative exponential utility

function:

$$U_i(\tilde{W}_i) = -e^{-\frac{\tilde{W}_i}{r_i}} \quad (15)$$

where:

$$\begin{aligned} \tilde{W}_i &= \text{Investor } i\text{'s final wealth,} \\ r_i &= \text{Investor } i\text{'s risk preference.} \end{aligned}$$

Wealth is defined by:

$$\tilde{W}_1 = E_i + \tilde{P}_1 x_i + (\tilde{P}_2 - \tilde{P}_1) \tilde{D}_{1i} + (\tilde{u} - \tilde{P}_2) \tilde{D}_{2i} \quad (16)$$

where:

$$\begin{aligned} \tilde{P}_1 \text{ and } \tilde{P}_2 &= \text{Price of risky asset in periods} \\ &\quad \text{and 2 respectively,} \\ \tilde{D}_{1i} \text{ and } \tilde{D}_{2i} &= \text{Individual } i\text{'s demand for risky} \\ &\quad \text{asset in period 1 and 2} \\ &\quad \text{respectively.} \end{aligned}$$

Four events occur in the first period. First, each trader is endowed with a unique combination of riskless bonds and a risky asset. Second, a public signal \tilde{y}_1 conveys information regarding the risky asset's value - $\tilde{y}_1 = \tilde{u} + \tilde{\eta}$ - $\tilde{\eta}$ is normally distributed with mean 0 and precision m . Third, traders observe private signals \tilde{z}_i -

$\bar{z}_i = \bar{u} + \bar{\epsilon}_i$. The residual term $\bar{\epsilon}_i$ is independently and normally distributed with mean 0 and precision s_i . The private and public signals serve as the preannouncement information for the period 2 public signal. Fourth, the trading market opens and \bar{P}_1 , the period one stock price, is set.

In period 2 public announcement \bar{y}_2 occurs.

$\bar{y}_2 = \bar{u} + \bar{v}$. \bar{v} is normally distributed with mean 0 and precision n . When trading opens price \bar{P}_2 is arrived at. KV conjecture that \bar{P}_2 is a linear function of previous information regarding the expected return and the supply noise:

$$\bar{P}_2 = \alpha_2 \bar{u} + \theta_{21} \bar{y}_1 + \theta_2 \bar{y}_2 + B_2 \bar{u} - \gamma_2 \bar{x} \quad (17)$$

where:

$$\bar{u} = \int_0^1 \bar{z}_i di .$$

KV express the two price signals \bar{P}_2 and \bar{P}_1 as normalized signals \bar{q}_2 and \bar{q}_1 respectively. The signals are defined as:

$$\bar{q}_t = \bar{u} - B_t \bar{x} \quad (18)$$

where:

$$B_t = \frac{Y_t}{\beta_t} \quad . \quad Y_t \text{ and } \beta_t \quad \text{are regression}$$

coefficients from Equation (17).

It is assumed that both normalized signals \tilde{q}_2 and \tilde{q}_1 have precision $\frac{t}{B_t^2}$. As mentioned earlier, t is the precision of the aggregate endowment amount of risky asset \tilde{x} .

Determining period 2 price.

KV employ a dynamic program technique. They first determine \tilde{P}_2 . The value for \tilde{P}_2 is then substituted into the period 1 problem and the value for \tilde{P}_1 is found. After finding values for \tilde{P}_1 and \tilde{P}_2 , KV use their results to demonstrate which factors affect the trading volume level. This section summarizes KV's methodology for finding the values of \tilde{P}_1 and \tilde{P}_2 .

According to properties of the normal distribution, the precision K_{2i} of investor i 's total information, is the sum of the precision of his/her prior and observed signals:

$$\begin{aligned}
K_{2i} &= \text{Var}^{-1}(\bar{u} | \bar{y}_1, \bar{y}_2, \bar{z}_i, \bar{q}) \\
&= h + m + n + s_i + \frac{t}{B^2}
\end{aligned} \tag{19}$$

\bar{u}_{2i} is the posterior expectation of \bar{u} for investor i at the end of period 2. It is the average of the investor's prior expectations and signals weighted by precision K_{2i} .

$$\bar{u}_{2i} = \frac{h\bar{u} + m\bar{y}_1 + n\bar{y}_2 + s_i\bar{z}_i + \left(\frac{t}{B^2}\right)q}{h + m + n + s_i + \left(\frac{t}{B^2}\right)} \tag{20}$$

Investor i 's demand in period 2 is as a function of the difference between his/her assessment of the risky asset's expected return level and the market price \bar{P}_2 .⁷ Thus:

⁷ KV claim that the demand function can be expressed in this manner for two reasons. First, all random variables in their model have a normal distribution. Second, they assumed that all investors have a negative exponential utility function.

$$\bar{D}_{2i} = r_i K_{2i} (\bar{u}_{2i} - \bar{P}_2) = \quad (21)$$

$$r_i \left[(h\bar{u} + m\bar{y}_1 + n\bar{y}_2 + s_i \bar{z}_i + \left(\frac{t}{B^2} \right) \bar{q}) - K_{2i} \bar{P}_2 \right] \quad (22)$$

The market clearing condition requires that the supply of the risky asset \bar{x} in period 2 is equal to the aggregate gross demand \bar{D}_2 in that period.

$$\bar{x} = \bar{D}_2 \quad (23)$$

$$= \int \bar{D}_{2i} di \quad (24)$$

$$\int r_i \left[h\bar{u} + m\bar{y}_1 + n\bar{y}_2 + s_i (\bar{u} + \bar{e}_i) + \left(\frac{t}{B^2} \right) \bar{q} - K_{2i} \bar{P}_2 \right] \quad (25)$$

The value of \bar{P}_2 can be determined through solving Equation (25) and rearranging terms.

$$\bar{P}_2 = \frac{1}{K_2} \left[h\bar{u} + m\bar{y}_1 + n\bar{y}_2 + \left(s + \frac{t}{B^2} \right) \bar{u} - \left(\frac{1}{r} + \frac{t}{B} \right) \bar{x} \right] \quad (26)$$

Determining period 1 price

The period 1 problem is to find a level of demand for investor i that will maximize his/her expected wealth. Once the optimal demand is determined the value of \bar{P}_1 can then be found.

Expressed mathematically this is equivalent to:

$$\max_{\bar{D}_{1i}} = E[U_i(W_i) | \bar{Y}_i, \bar{z}_i, \bar{P}_1] \quad (27)$$

$$= E[U_i(W_i) | \bar{Y}_i, \bar{z}_i, \bar{Q}] \quad (28)$$

Putting in to the above equation the definition for wealth which was given in Equation (16) Equation (28) becomes:

$$= E \left[-\exp \left\{ \frac{1}{r_i} [E_i + \bar{P}_1 \bar{x}_i + (\bar{P}_2 - \bar{P}_1) \bar{D}_{1i} + (\bar{u} - \bar{P}_2) \bar{D}_{2i}] \right\} \right. \\ \left. | \bar{Y}_i, \bar{z}_i, \bar{Q} \right] \quad (29)$$

In KV's appendix A they solve the above problem and show that the optimal solution is:

$$\bar{D}_{1i} = \frac{r_i}{n} [K_2 h \bar{u} + K_2 m \bar{y}_1 + n s_i \bar{z}_i$$

$$+ \{K_2 (s + r^2 s^2 t) - n s\} \bar{q} - \{n (s_i - s) + K_1 K_2\} \bar{P}_1] \quad (30)$$

where:

$$\begin{aligned} K_{1i} &= h + m + s_i + r^2 s^2 t, \\ K_1 &= h + m + s + r^2 s^2 t \end{aligned}$$

As shown in Equation (23), the market clearing condition requires:

$$\bar{x} = \bar{D}_1 \quad (31)$$

$$= \int \bar{D}_{1i} di \quad (32)$$

Substituting \bar{D}_{1i} into Equation (32), performing the integration and rearranging terms, \bar{P}_1 is found to be:

$$\bar{P}_1 = \frac{1}{K_1} \left[h \bar{u} + m \bar{y}_1 + (s + r^2 s^2 t) \bar{u} - \left(\frac{1}{r} + rst \right) \bar{x} \right] \quad (33)$$

Identifying earnings surprise term.

Using the above solutions for \tilde{P}_2 and \tilde{P}_1 , KV develop an expression for ΔP . First KV identify the expression for the earnings surprise.

Subtracting \tilde{P}_1 from \tilde{P}_2 yields:

$$\tilde{P}_2 - \tilde{P}_1 = \frac{nV}{K_2} + \left(\frac{1}{K_2} - \frac{1}{K_1} \right)$$

$$X \quad [h(\bar{u} - \bar{u}) + m\eta - (rst + r^{-1})\bar{x}]$$

$$= \frac{n}{K_1 K_2} [h(\bar{u} - \bar{u}) + m\eta - (rst + r^{-1})\bar{x} + K_1 \bar{v}]$$

$$= \frac{n}{K_2 K_1} [(K_1 - m - s - r^2 s^2 t)\bar{u} + K_1 \bar{v} - h\bar{u} - m\eta + (rst + r^{-1})\bar{x}]$$

$$= \frac{n}{K_2 K_1} \left[K_1(\bar{u} + \bar{v}) - h\bar{u} - m(\bar{u} + \eta) - s\bar{u} - r^2 s^2 t \left(\bar{u} - \frac{x}{rs} \right) + \frac{\bar{x}}{r} \right]$$

$$= \frac{n}{K_2} \left[\tilde{Y}_2 - \frac{h\bar{u} + m\tilde{Y}_1 + s\bar{u} + r^2 s^2 t \bar{q}}{K_1} + \frac{\bar{x}}{rK_1} \right] \quad (34)$$

KV explain that the earnings surprise term can be identified in Equation (34). The earnings surprise is defined as:

$$\tilde{Y}_2 - \frac{h\bar{u} + m\tilde{Y}_1 + s\bar{u} + r^2 s^2 t \bar{q}}{K_1} \quad (35)$$

The left hand term in Equation (35) is the new earnings information which was announced in period 2. The right hand term is the average of the traders' preannouncement signals and expectations regarding the return on \bar{u} weighted by the precision. The difference between the two terms is the earnings surprise.

KV label the right hand term $\frac{\bar{x}}{rK_2}$ in Equation (34) as earnings noise. It is considered noise since it is a function of extraneous factors. Based on the above, Equation

(34) can be expressed as Equation (1) which was stated earlier:

$$\Delta P = \frac{n}{K_2} \times UE$$

Appendix II -- Summary Statistics Data Points in Study--
Annual

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
BA	9012	33	0.958	1.32	15590	1.06	47.25	-0.004	-0.007
BA	9112	31	0.978	1.34	16296	1.03	52.75	0.001	-0.057
BA	9212	31	0.958	1.07	13619	0.75	34.63	0.000	0.011
BA	9312	30	0.966	0.08	14711	0.71	43.00	0.001	-0.200
BAC	9012	31	1.034	1.68	5654	0.05	25.50	0.001	0.041
BAC	9112	32	0.971	1.99	7852	0.06	38.88	0.002	0.006
BAC	9212	34	0.989	1.79	16210	0.08	52.50	0.001	-0.001
BAC	9312	33	0.935	1.47	16598	0.08	45.63	-0.000	-0.041
BBF	9012	29	1.135	1.46	1194	0.03	18.00	-0.021	0.024
BBF	9112	31	1.005	2.20	2338	0.07	33.63	0.000	0.000
BBF	9212	33	0.972	2.29	3987	0.10	42.63	-0.000	-0.045
BBF	9312	36	0.933	1.28	4042	0.10	40.25	0.001	-0.028
BBNK	9312	11	1.022	2.07	951	0.09	51.00	0.004	0.006
BBV	9312	4	0.975	0.84	5140	0.06	22.88	0.003	-0.083
BC	9012	9	0.956	1.60	795	0.41	12.63	-0.004	-0.137
BC	9112	11	0.974	1.92	1229	0.66	16.00	-0.022	-0.211
BC	9212	14	0.988	1.75	1546	0.81	16.63	-0.001	-0.374
BC	9312	13	1.016	1.15	1715	0.86	20.00	-0.001	-0.478

where:

Firm = I/B/E/S ticker name,
EA = Year for which earning announcement made,
N = Number of analysts on I/B/E/S annual
summary tape following firm,
CAR = Cumulative abnormal return for 3 day
window around earnings announcement,
 β = Market model slope coefficient based on 2
years of returns before announcement,
MV = Common stock price X number of shares
outstanding,
MB = *MV*/Book value of company,
P = Stock price on day of earnings
announcement,
UE = Earnings surprise,
 ΔD = Change in dispersion in analysts's
forecasts around earnings announcement
day.

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
BCC	9112	25	1.048	1.36	844	0.17	23.88	-0.003	-0.877
BCM	9212	2	1.014	0.43	4555	0.05	13.13	-0.028	-0.132
BCR	9012	28	1.047	0.96	902	1.47	17.25	-0.002	-0.020
BCR	9112	28	1.021	0.96	1624	2.46	31.50	0.000	0.009
BCR	9212	26	1.016	1.14	1750	2.45	34.50	0.000	-0.014
BCR	9312	27	0.964	2.28	1315	1.64	28.50	0.000	-0.013
BCS	9312	4	1.029	0.31	18969	0.07	34.13	-0.001	-0.113
BEC	9212	8	1.035	1.05	682	0.92	24.75	0.001	-0.016
BEL	9012	32	0.893	0.99	21085	0.75	47.63	-0.003	-0.002
BEL	9112	29	1.028	0.73	19109	0.68	47.13	-0.004	-0.012
BEL	9212	35	1.025	0.39	22241	0.79	52.88	0.002	-0.012
BEL	9312	34	0.992	0.55	25838	0.87	55.50	-0.000	0.007
BETZ	9012	18	1.045	0.93	1172	2.74	41.63	0.001	-0.009
BETZ	9112	23	0.999	1.17	1694	3.55	62.75	0.001	0.017
BETZ	9212	21	0.988	1.20	1765	3.45	61.00	0.000	-0.009
BETZ	9312	22	1.019	0.85	1234	2.36	50.38	-0.007	-0.032
BEV	9012	18	1.074	0.87	569	0.35	9.50	-0.001	-0.014
BEV	9112	17	0.967	1.04	653	0.39	9.00	0.000	-0.078
BEZ	9112	9	1.005	0.63	226	1.11	24.25	-0.001	-0.006
BEZ	9312	11	1.017	0.58	429	1.80	25.63	-0.000	0.015
BK	9012	19	0.994	1.49	1231	0.02	18.00	0.000	-0.057
BK	9112	21	1.149	1.79	2159	0.05	37.63	0.000	0.026
BK	9212	21	1.092	2.03	4357	0.10	60.25	0.000	-0.030
BK	9312	26	0.970	1.22	5335	0.11	56.88	0.005	-0.041
BKB	9112	17	1.118	2.12	865	0.02	15.38	-0.021	-0.176
BKB	9212	21	0.990	2.11	2161	0.06	25.88	0.005	-0.024
BKB	9312	24	1.024	1.62	2433	0.05	24.50	0.023	-0.038
BKLY	9312	14	1.023	0.42	607	0.28	37.75	0.013	-0.089
BMGC	9012	24	0.996	-0.58	517	1.15	6.00	-0.006	-0.040
BN	9012	25	1.010	1.07	4400	0.83	30.50	-0.000	-0.009
BN	9112	23	0.989	1.04	4812	0.87	32.88	-0.001	-0.025
BN	9212	21	0.993	1.27	4026	0.75	27.25	0.000	-0.086
BN	9312	20	1.068	0.45	2403	0.62	15.50	0.007	0.034
BOAT	9012	15	1.039	0.75	1101	0.06	30.50	0.000	-0.020
BOAT	9112	12	0.999	1.02	1766	0.10	48.25	-0.000	-0.004
BOAT	9212	17	0.969	0.95	2704	0.11	54.75	-0.003	-0.007
BOAT	9312	20	0.984	1.24	3111	0.11	28.88	0.000	-0.042
BOL	9012	19	0.977	1.24	2101	1.25	67.13	0.000	-0.004
BOL	9112	17	1.031	1.04	3450	1.94	56.25	0.000	0.035
BOL	9212	19	1.032	1.20	3240	1.72	53.63	-0.000	-0.005
BOL	9312	18	1.041	1.43	3030	1.20	51.50	-0.000	-0.006
BOW	9012	16	1.009	1.03	758	0.32	21.25	-0.004	0.072
BP	9012	28	0.983	0.25	34367	0.58	70.38	0.027	-0.063

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
BP	9112	25	0.899	0.25	29549	0.49	55.88	-0.043	0.045
BP	9312	30	0.969	1.11	29072	0.63	65.75	-0.003	0.010
BR	9012	19	0.992	0.63	5242	0.82	34.13	0.001	0.018
BR	9112	23	1.024	0.53	4633	0.73	35.25	0.001	0.025
BR	9212	26	0.993	0.81	5155	1.15	38.00	0.007	-0.064
BR	9312	24	0.987	0.53	5495	1.23	44.50	0.000	0.007
BS	9012	15	1.050	1.42	1119	0.25	14.63	0.015	-0.079
BSE	9012	19	1.006	0.53	780	0.25	19.38	-0.005	0.009
BSE	9212	19	1.026	0.37	1231	0.37	28.13	0.001	-0.001
BSE	9312	22	1.016	0.48	1343	0.38	28.00	-0.009	0.011
BT	9012	25	0.914	1.56	3510	0.05	41.00	-0.004	0.009
BT	9112	30	1.020	1.47	5254	0.08	64.75	0.002	-0.016
BT	9212	30	0.974	1.30	5677	0.07	67.13	0.004	0.000
BT	9312	30	1.012	0.99	6378	0.06	78.63	0.013	-0.010
BUD	9012	30	1.004	1.06	12139	1.25	45.50	0.000	-0.006
BUD	9112	23	0.951	1.09	17531	1.75	55.88	0.000	-0.001
BUD	9212	26	0.976	0.76	16287	1.54	57.00	0.000	-0.008
BUD	9312	25	0.995	0.93	13118	1.20	48.13	0.000	-0.051
BVF1	9012	8	0.986	0.77	96	0.03	14.13	-0.043	-0.033
BVF1	9112	7	1.066	1.24	142	0.05	17.50	-0.052	0.005
BW	9012	11	1.082	0.89	225	0.66	18.38	-0.003	-0.039
BW	9112	11	0.963	1.01	215	0.69	13.88	0.000	0.037
C	9212	26	0.977	1.41	9469	0.23	39.13	0.002	-0.076
C	9312	26	0.992	1.67	18836	0.42	61.00	0.013	-0.117
CAF	9212	6	1.002	1.18	6056	0.16	92.00	-0.001	-0.183
CAO	9012	16	0.903	1.08	85	0.23	15.88	-0.017	-0.112
CAO	9112	19	0.977	1.28	131	0.34	16.63	-0.022	0.017
CAT	9212	32	0.996	1.24	5414	0.38	56.75	-0.002	0.029
CAT	9312	28	1.071	1.12	9066	0.61	100.25	0.003	-0.102
CCE	9012	19	1.093	1.16	1780	0.35	18.00	0.007	-0.091
CCI	9212	30	1.137	1.67	8154	0.03	26.00	0.012	-0.045
CCI	9312	29	0.948	1.64	14252	0.06	40.00	0.012	-0.083
CDV	9012	23	1.030	1.64	1045	1.34	21.88	-0.000	-0.015
CDV	9112	25	0.998	1.64	2262	3.23	33.13	-0.000	0.019
CE2	9112	7	1.045	1.52	499	0.96	12.13	-0.001	0.013
CG	9012	18	1.044	0.25	2366	0.38	46.38	-0.000	-0.001
CGP	9012	25	1.005	1.02	3341	0.36	33.00	-0.001	0.007
CGP	9112	24	0.992	0.87	2555	0.26	23.63	-0.022	0.016
CGP	9312	21	1.012	0.46	2953	0.28	31.50	0.000	-0.051
CI	9012	25	0.955	1.33	2915	0.04	47.50	0.003	-0.022
CI	9112	26	1.033	1.46	4374	0.06	55.25	0.006	-0.009

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	<i>AD</i>
CI	9212	29	0.983	1.19	4205	0.06	62.50	-0.013	0.026
CI	9312	26	1.011	0.68	4519	0.05	68.00	0.005	0.017
CIC	9012	24	1.041	1.16	1353	0.09	29.13	0.021	-0.236
CIC	9212	24	1.011	1.16	1476	0.11	27.50	-0.007	-0.068
CIC	9312	22	0.941	0.93	1529	0.09	25.75	0.024	-0.011
CIN	9012	16	1.012	0.42	1556	0.37	29.50	0.000	-0.017
CIN	9112	19	0.995	0.36	2266	0.49	37.25	-0.004	-0.030
CIN	9212	20	0.989	0.41	2149	0.44	24.38	0.001	-0.048
CINF	9312	12	0.966	0.66	2691	0.58	56.50	0.007	0.002
CL	9012	17	0.992	1.15	4912	1.18	72.88	0.000	-0.003
CL	9112	17	1.004	1.05	7201	1.59	46.63	0.000	-0.004
CL	9212	18	1.007	1.13	8933	1.64	60.13	0.000	0.013
CL	9312	22	1.038	1.46	9310	1.61	61.13	0.000	-0.003
CP1	9012	21	1.041	0.83	5410	0.31	18.88	-0.004	-0.069
CP1	9112	17	1.013	0.89	4900	0.27	15.50	-0.051	-0.345
CP1	9212	14	0.972	1.19	4028	0.25	12.75	-0.030	0.011
CRBN	9012	14	1.058	1.51	879	3.08	46.25	0.000	-0.014
CRBN	9112	18	0.982	1.75	871	2.59	24.88	-0.000	-0.042
CRBN	9212	14	1.066	1.59	721	2.15	17.63	0.001	-0.085
CRBN	9312	14	1.016	0.69	532	1.57	13.75	0.001	-0.203
CSFN	9012	26	0.883	1.33	1724	0.07	25.13	-0.049	0.079
CSFN	9112	29	0.941	1.52	2624	0.12	46.50	-0.000	-0.014
CSFN	9212	30	0.969	1.31	3336	0.14	56.00	0.000	-0.010
CSFN	9312	32	0.990	1.34	3065	0.12	26.63	0.027	-0.017
CSK	9012	13	1.088	0.66	278	0.31	15.13	-0.015	-0.063
CSK	9212	16	0.923	0.96	478	0.49	20.38	0.000	-0.077
CSN	9112	11	1.026	0.71	1193	0.68	19.50	0.012	0.084
CSR	9012	25	1.005	0.39	4140	0.45	44.75	0.000	-0.017
CSR	9112	24	1.024	0.45	5083	0.54	51.88	-0.000	-0.008
CSR	9212	24	1.013	0.39	5486	0.55	29.88	0.000	-0.003
CSR	9312	24	0.972	0.54	5699	0.53	28.63	-0.005	-0.003
CSX	9012	19	1.020	1.28	3129	0.24	31.75	0.010	-0.000
CSX	9112	17	0.955	1.28	5925	0.46	55.75	-0.002	-0.030
CSX	9212	19	0.978	1.44	7114	0.54	73.25	0.000	-0.012
CXY	9012	18	1.013	-0.05	825	0.66	13.13	-0.015	0.138
CXY	9312	16	1.011	0.04	1500	0.87	20.63	-0.014	-0.099
CYPR	9012	18	1.051	1.56	394	1.27	15.00	0.000	-0.018
CYPR	9212	16	0.976	1.46	334	1.04	10.75	-0.064	-0.144
CYPR	9312	17	1.038	1.11	493	1.44	15.13	0.001	-0.005
CYR	9012	27	1.070	1.63	785	0.83	37.50	-0.000	-0.011
CYR	9112	25	1.009	1.58	1030	0.95	45.50	0.001	-0.014
CYR	9212	19	1.054	1.98	596	0.58	28.13	-0.060	-0.275
CYR	9312	16	1.085	0.99	666	0.56	28.88	0.002	-0.037

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
D	9012	29	0.981	0.48	4837	0.44	46.13	-0.003	-0.010
D	9112	27	1.019	0.27	6036	0.53	37.63	0.000	0.003
D	9212	27	0.995	0.28	6472	0.51	39.75	0.005	0.007
D	9312	32	0.998	0.54	7629	0.57	43.25	-0.000	-0.002
E	9012	24	1.046	0.68	983	0.21	35.00	0.002	0.099
E	9112	22	0.936	0.55	583	0.12	17.88	0.001	0.011
E	9212	19	1.038	0.94	574	0.13	14.00	0.006	-0.093
E	9312	18	1.007	1.19	584	0.14	15.25	0.011	-0.028
ED	9012	28	0.984	0.71	5392	0.50	23.50	0.001	-0.000
ED	9112	23	1.008	0.68	6536	0.58	28.13	-0.002	-0.007
ED	9212	23	0.999	0.41	7632	0.65	33.00	0.000	-0.001
ED	9312	25	1.035	0.42	7529	0.55	30.75	0.001	-0.007
EFX	9012	11	1.056	0.90	1320	1.74	19.50	0.001	-0.021
EFX	9112	13	0.975	1.25	1304	1.82	15.88	0.003	-0.078
EFX	9212	13	0.935	1.09	1563	2.20	20.00	-0.000	-0.020
EGG	9012	10	1.000	0.52	871	1.28	36.88	0.000	-0.040
EK	9012	26	0.948	0.98	13513	0.56	43.88	-0.001	0.009
EK	9112	23	0.908	1.07	15678	0.64	46.50	-0.005	-0.020
EK	9212	25	0.968	1.04	13200	0.57	49.25	-0.000	-0.030
EK	9312	22	1.026	0.67	18594	0.91	44.88	-0.001	-0.147
ELE1	9112	7	0.995	0.75	7638	0.44	32.63	0.003	0.034
ELE1	9212	5	1.000	0.66	8483	0.58	36.50	0.000	0.013
ELE1	9312	7	1.013	1.04	.	.	53.13	-0.001	-0.128
EMCS	9212	8	0.875	1.12	917	2.85	24.75	0.000	-0.010
EMCS	9312	11	0.993	2.87	3091	3.72	20.00	0.001	-0.047
EN	9112	11	1.015	1.14	273	1.10	16.25	-0.002	-0.004
EN	9212	14	0.995	0.90	290	1.13	21.50	-0.000	-0.010
EN	9312	19	0.990	0.79	337	1.19	19.38	-0.000	-0.121
EOG	9112	18	0.969	0.59	1480	1.01	17.50	0.002	0.093
EOG	9312	19	1.004	0.94	3117	1.72	44.13	0.001	-0.055
ESY	9012	22	0.988	0.44	1073	1.09	37.63	-0.000	-0.005
ESY	9112	18	1.099	0.34	1228	1.14	34.63	0.000	-0.003
ESY	9212	16	0.949	0.69	1353	1.07	42.25	-0.001	-0.014
ESY	9312	12	0.975	0.61	1470	1.14	45.00	-0.000	-0.023
ETN	9012	23	1.005	0.84	1693	0.56	56.13	0.001	0.029
ETN	9112	23	0.986	1.02	2202	0.71	67.88	-0.000	-0.020
ETN	9212	24	0.994	1.16	2830	0.91	78.75	0.000	-0.000
ETN	9312	21	1.041	0.97	3601	1.10	60.13	0.000	-0.004
EUA	9012	12	0.910	0.34	390	0.35	22.50	-0.048	0.046
EWSC	9012	7	1.008	1.09	1267	0.83	17.50	-0.002	-0.034
EY	9012	24	0.992	1.40	2781	0.41	24.75	0.002	0.000
EY	9112	22	0.937	1.26	3313	0.41	25.00	0.000	-0.014

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
EY	9212	21	0.946	1.46	3388	0.36	29.00	-0.010	0.152
EY	9312	17	0.947	0.82	2072	1.03	18.38	0.020	-0.016
F	9212	25	1.010	1.20	20987	0.11	50.63	-0.001	-0.051
F	9312	27	0.958	1.10	32186	0.16	66.00	0.001	-0.041
HAL	9012	30	1.005	0.92	4873	1.07	47.50	-0.001	-0.006
HAL	9112	28	1.100	0.68	3050	0.60	28.38	-0.002	-0.201
HAL	9212	28	1.071	1.26	3082	0.65	32.38	0.004	-0.064
HAL	9312	31	0.996	1.15	3637	0.67	33.00	0.000	-0.109
HAS	9012	14	1.054	1.27	883	0.68	24.50	0.000	-0.009
HAS	9112	17	1.004	1.40	2327	1.19	41.75	0.000	-0.059
HAS	9212	17	1.004	1.45	2844	1.36	32.50	0.001	-0.051
HBAN	9012	12	1.010	0.71	651	0.05	12.25	-0.001	-0.045
HBAN	9212	13	0.995	1.07	1756	0.12	22.13	0.001	-0.019
HBAN	9312	20	0.990	1.24	2452	0.13	23.63	0.004	-0.088
HDI	9112	7	0.991	2.44	796	1.67	51.88	0.000	0.037
HDI	9212	9	0.951	1.96	1425	2.72	32.88	0.001	-0.009
HE	9212	6	1.017	0.29	922	0.22	36.63	-0.000	-0.008
HGIC	9312	9	1.013	0.75	395	0.33	25.50	0.002	0.117
HI	9012	17	0.995	1.71	1177	0.03	38.88	0.004	-0.024
HI	9212	16	1.018	1.66	2455	0.07	64.88	-0.001	-0.106
HI	9312	18	1.043	1.09	3081	0.09	33.38	0.004	-0.064
HL	9212	7	1.073	0.31	245	1.10	9.00	-0.046	-0.548
HLT	9012	14	0.982	1.58	1769	0.91	36.63	0.001	-0.011
HLT	9112	16	1.010	1.47	1924	0.87	42.75	0.000	-0.077
HLT	9212	15	0.979	1.27	2069	0.77	46.63	-0.002	-0.025
HLTH	9312	14	1.004	1.81	821	2.78	58.88	0.000	-0.058
HM	9012	20	0.976	-0.49	1908	1.76	15.63	-0.005	0.130
HM	9312	21	1.031	-0.04	3025	2.69	22.25	-0.001	-0.415
HMN	9312	11	1.015	1.41	724	0.23	24.75	0.012	-0.017
HNM	9112	7	0.985	1.01	457	0.44	24.50	0.012	-0.031
HNM	9212	11	0.935	1.32	676	0.57	26.50	0.004	0.013
HON	9112	16	0.991	1.37	4548	0.94	73.00	0.000	-0.006
HON	9212	21	1.016	0.98	4545	0.93	33.25	0.003	-0.015
HON	9312	18	0.986	0.74	4506	0.97	32.38	0.000	-0.005
HOU	9012	23	0.993	0.46	4710	0.39	36.75	-0.001	-0.010
HOU	9112	22	1.001	0.35	5731	0.47	41.75	0.003	-0.007
HOU	9212	23	1.029	0.40	5941	0.47	48.63	-0.007	-0.019
HOU	9312	26	1.002	0.55	6223	0.50	45.63	0.000	-0.037
HPC	9012	20	0.978	0.89	1579	0.42	37.50	-0.000	-0.005
HPC	9112	15	1.041	0.71	2346	0.67	48.13	0.000	0.010
HPC	9212	15	0.993	0.68	2764	0.85	68.50	0.000	-0.026

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
HPC	9312	16	1.033	0.87	4635	1.46	114.50	0.000	-0.019
HRD	9012	12	1.020	1.01	713	1.13	39.75	-0.000	-0.030
HRD	9112	13	1.069	0.74	968	1.37	48.38	0.000	-0.038
HRD	9212	14	1.018	0.67	907	1.18	22.88	0.000	0.007
HRHC	9112	6	0.991	0.47	144	1.09	13.25	-0.003	-0.024
HRHC	9312	11	1.016	0.60	180	1.15	12.00	-0.003	-0.000
HSC	9212	7	0.971	0.50	961	0.96	39.75	0.002	-0.006
HSY	9012	24	0.930	1.04	3382	1.62	39.00	-0.000	0.002
HSY	9112	26	1.053	0.98	4002	1.70	43.88	0.000	0.001
HSY	9212	27	1.004	0.95	4239	1.58	48.00	0.000	-0.002
HSY	9312	27	0.979	0.87	4293	1.50	48.25	0.001	0.003
HTN	9112	8	0.977	1.09	407	1.06	31.25	0.000	-0.017
HUB1	9012	10	0.991	0.84	1248	1.99	43.50	-0.000	0.000
HUB1	9112	9	0.968	0.76	1676	2.44	57.63	-0.000	-0.009
HUB1	9212	13	1.004	0.55	1735	2.15	56.63	-0.000	-0.011
HXL	9012	8	0.966	1.19	76	0.21	11.13	-0.017	0.144
I	9012	29	1.041	1.95	1461	0.02	21.38	0.006	-0.042
I	9112	28	1.084	1.93	1883	0.03	33.88	-0.028	-0.152
I	9212	29	1.029	1.56	3515	0.06	50.00	0.001	-0.027
I	9312	27	0.949	1.27	4959	0.09	66.50	0.000	-0.098
IBM	9012	37	1.017	0.90	64567	0.73	118.00	0.003	-0.003
IBM	9112	33	0.986	0.90	50821	0.54	92.88	-0.003	-0.110
IBM	9212	30	0.980	0.78	28786	0.33	46.88	-0.004	0.081
IBM	9312	25	1.026	0.65	32848	0.40	56.38	0.000	-0.056
IBP	9112	9	1.056	0.69	692	0.47	16.75	0.000	-0.379
IFF	9012	19	1.009	1.06	2843	2.51	80.00	0.000	-0.005
IFF	9112	16	0.998	1.04	3917	3.21	99.38	0.000	-0.011
IFF	9312	14	1.010	0.83	4249	3.46	38.25	0.000	-0.014
ION	9112	7	1.012	0.55	257	1.44	52.25	0.000	-0.005
ION	9312	7	0.987	0.84	345	1.38	45.00	-0.000	-0.020
IP	9012	24	0.998	0.97	5869	0.42	51.38	0.000	-0.040
IP	9112	28	1.017	1.09	7956	0.53	72.13	-0.000	-0.022
IP	9212	25	0.953	1.26	8172	0.49	61.75	-0.000	-0.099
IP	9312	24	0.988	0.92	8393	0.50	72.25	0.002	-0.178
IPG	9212	8	0.880	1.20	2618	0.99	29.13	-0.000	-0.011
IR	9012	23	1.001	1.98	1927	0.64	38.63	0.000	-0.022
IR	9112	23	1.015	1.44	2852	0.95	59.25	0.001	-0.008
IR	9212	25	1.056	1.65	3047	0.89	34.00	-0.000	-0.052
IR	9312	24	1.002	1.42	4026	1.19	38.25	0.001	-0.002
IWG	9212	8	0.960	0.14	649	0.38	21.13	-0.004	-0.034
JBM	9012	7	1.033	1.86	149	0.71	10.13	-0.028	0.005

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
JH	9012	15	0.988	0.69	714	2.00	20.25	-0.001	-0.009
JH	9112	13	0.960	0.81	873	2.48	23.25	-0.000	0.006
JP	9012	19	1.016	0.89	1277	0.28	41.00	0.003	0.004
JP	9112	17	0.964	0.81	1932	0.39	52.63	0.001	-0.077
JP	9212	18	1.039	0.70	2427	0.46	51.25	0.007	-0.020
JP	9312	19	0.984	0.90	2319	0.41	43.50	0.002	-0.041
JPM	9012	30	0.949	1.31	8238	0.08	42.13	-0.002	-0.014
JPM	9112	32	0.941	1.32	13006	0.12	65.75	0.004	-0.017
JPM	9212	31	0.981	1.13	12598	0.12	60.50	0.012	-0.024
JPM	9312	29	1.017	0.76	13395	0.10	70.88	0.004	-0.006
JR	9112	26	0.995	1.24	1630	0.28	22.50	0.000	0.080
JR	9312	20	1.003	0.82	1571	0.26	19.50	-0.005	0.155
K	9012	33	0.996	0.81	9155	2.44	78.38	0.000	-0.006
K	9112	31	0.938	1.11	15720	4.00	57.25	-0.000	-0.020
K	9212	32	0.944	1.03	15900	3.96	61.25	-0.000	-0.008
K	9312	33	1.010	0.77	12934	3.05	55.25	0.000	-0.038
MAS	9012	16	0.998	0.88	2530	0.67	21.75	-0.022	0.065
MAS	9112	18	1.034	1.31	3549	0.93	27.25	-0.014	-0.198
MAS	9312	21	1.002	1.66	5655	1.40	37.38	0.001	-0.037
MAT	9012	12	0.986	1.99	988	1.06	23.38	-0.002	-0.018
MAT	9112	13	0.995	1.92	2097	1.97	33.75	-0.000	-0.003
MAT	9312	17	1.063	1.43	3754	1.87	24.75	0.003	-0.010
MAWS	9212	12	0.895	1.10	293	0.43	10.75	-0.001	-0.009
MCAW	9112	12	1.039	2.27	5423	0.62	35.00	-0.033	-0.175
MCAW	9212	15	1.064	1.65	6235	0.69	34.50	-0.004	0.098
MCD	9012	31	0.936	1.10	10459	0.98	26.75	0.000	0.001
MCD	9112	27	1.049	1.25	13631	1.20	44.25	0.000	0.005
MCD	9212	29	1.002	0.92	17725	1.51	48.75	-0.000	-0.000
MCD	9312	31	1.004	0.91	20161	1.67	60.75	-0.000	-0.012
MCIC	9012	31	1.059	1.43	4985	0.60	24.38	-0.000	0.005
MCIC	9112	29	1.052	1.39	7835	0.88	33.50	0.000	-0.038
MCIC	9212	32	0.969	1.22	10421	1.07	40.50	0.000	-0.003
MCIC	9312	30	0.958	0.97	15283	1.35	27.63	-0.001	-0.013

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
MCL	9012	12	0.943	0.79	2180	1.00	24.25	0.003	0.042
MCN2	9112	11	1.003	0.05	643	0.42	23.63	-0.001	-0.001
MD	9012	23	1.142	0.76	1490	0.09	45.50	-0.012	-0.149
MD	9112	20	0.992	1.49	2812	0.18	69.63	0.005	-0.068
MD	9312	13	1.006	0.95	4208	0.34	113.75	0.001	-0.087
MEA	9012	20	1.017	1.27	1501	0.38	27.25	-0.024	-0.103
MEA	9112	22	1.028	1.49	2013	0.50	37.25	0.001	-0.102
MEA	9212	21	1.004	1.56	2247	0.55	38.25	-0.000	-0.053
MEA	9312	20	0.997	1.09	2663	0.63	47.38	0.000	-0.120
MEG	9012	9	1.027	0.99	485	0.62	21.00	0.003	0.103
MER	9012	11	0.962	1.91	2072	0.03	23.13	-0.000	0.001
MER	9112	8	0.914	2.14	6073	0.07	59.25	0.000	-0.076
MER	9312	13	0.978	2.26	8568	0.05	39.75	0.003	-0.087
MES	9012	19	0.987	1.23	4323	1.18	48.38	0.002	0.000
MES	9112	18	1.016	1.31	4637	1.13	49.38	-0.002	-0.033
MES	9212	16	1.038	1.35	5564	1.32	49.38	-0.002	-0.004
MES	9312	15	1.042	0.95	4280	1.00	39.50	-0.006	-0.043
MFN	9112	8	1.047	1.55	1067	2.02	25.63	-0.000	0.004
MHP	9012	17	0.970	1.14	2575	1.01	56.50	0.000	-0.003
MHP	9112	14	0.995	0.81	2814	1.11	59.25	-0.000	-0.034
MHP	9212	17	0.992	0.60	3016	1.20	62.13	-0.001	-0.024
MHP	9312	18	0.996	0.47	3342	1.08	69.00	-0.000	-0.028
MNCO	9112	9	1.036	1.45	607	0.05	47.50	0.007	-0.065
MNCO	9212	15	1.017	1.29	764	0.07	54.25	-0.014	0.000
MNCO	9312	15	0.995	1.26	873	0.08	56.75	0.000	-0.036
MO	9012	34	1.001	1.22	47932	1.02	56.88	-0.000	-0.007
MO	9112	32	1.006	1.06	73818	1.55	76.88	-0.000	0.002
MO	9212	35	1.032	0.98	68854	1.37	74.88	0.000	0.000
MO	9312	33	1.033	1.40	48788	0.95	60.00	0.000	-0.151
MOB	9012	39	0.987	0.41	23263	0.55	57.75	0.006	0.019
MOB	9112	36	0.982	0.38	27035	0.64	67.38	-0.001	0.061
MOB	9212	34	1.028	0.53	25175	0.62	62.88	0.002	-0.061
MOB	9312	39	0.996	0.41	31505	0.77	80.00	0.001	-0.027
MOT	9112	29	1.072	1.26	8626	0.92	77.63	0.000	-0.032
MOT	9212	24	1.074	1.26	14092	1.32	123.25	0.000	0.220
MOT	9312	30	1.037	1.84	25701	1.90	99.00	0.000	-0.219
MRK	9012	46	1.005	1.12	34781	4.33	89.13	0.000	-0.001
MRK	9112	43	1.002	1.08	64354	6.77	152.38	0.000	-0.005
MRK	9212	47	0.946	0.97	49651	4.47	40.25	-0.000	0.000
MRK	9312	47	1.028	1.08	43104	2.16	35.88	0.001	-0.068

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
MS	9012	11	1.035	1.26	1978	0.03	58.88	-0.000	-0.024
MS	9112	8	0.979	1.69	4807	0.07	61.75	0.006	-0.040
MUR	9012	12	1.044	0.27	1318	0.61	36.75	-0.001	-0.111
MUR	9112	9	1.009	0.27	1529	0.70	36.13	0.001	0.046
MYG	9012	15	0.925	1.00	1123	0.43	11.25	-0.005	0.039
MYG	9112	15	1.058	0.93	1635	0.64	17.88	-0.002	0.048
MYG	9212	17	1.016	1.20	1586	0.63	15.38	0.003	-0.154
N	9012	37	1.047	1.25	2650	0.65	28.75	-0.008	-0.027
N	9112	31	0.957	1.14	3241	0.72	31.00	-0.006	0.226
NBD	9012	23	1.039	1.47	2407	0.09	34.38	0.000	-0.011
NBD	9112	27	0.995	1.28	3412	0.11	28.63	0.002	0.010
NBD	9212	30	1.028	1.08	5253	0.12	33.50	0.002	0.001
NBD	9312	32	0.992	1.03	4781	0.11	29.13	0.001	-0.011
NBL	9012	16	0.987	0.48	623	1.05	14.13	0.003	0.175
NBL	9112	17	0.921	0.72	602	1.02	12.38	-0.005	0.173
NBL	9212	21	1.017	0.74	786	1.25	18.50	-0.003	-0.020
NBL	9312	21	0.945	0.75	1323	1.23	26.38	-0.007	0.020
NEM	9012	17	0.974	-.12	2767	2.90	36.63	-0.007	-0.019
NEM	9112	20	0.970	-.07	2737	3.34	44.38	0.003	-0.042
NEM	9212	19	1.031	-.31	2803	2.30	38.88	-0.005	0.078
NES	9012	22	1.000	0.51	1601	0.36	24.88	-0.004	0.015
NES	9212	21	0.995	0.40	2501	0.54	38.38	0.001	0.003
NES	9312	26	1.044	0.48	2542	0.53	38.13	-0.004	0.001
NEV1	9312	8	0.998	0.00	210	0.72	24.13	-0.001	-0.150
NGC	9012	18	0.972	-.40	4457	6.30	36.50	-0.003	0.022
NGC	9112	21	0.970	-.21	4169	5.10	42.50	0.001	-0.038
NGC	9212	19	1.083	-.43	3395	3.75	30.25	-0.000	-0.192
NGE	9012	18	0.989	0.53	1623	0.34	24.88	0.000	-0.021
NGE	9112	18	0.981	0.39	1839	0.37	27.63	-0.001	-0.014
NGE	9212	18	1.018	0.33	2257	0.43	32.75	0.002	-0.017
NGE	9312	21	1.020	0.40	2171	0.41	29.00	-0.002	0.008
NHY	9312	9	1.030	0.93	5751	0.54	34.88	-0.004	0.026
NLC	9112	21	0.973	1.05	2907	2.19	35.88	0.001	-0.003
NLC	9212	21	1.041	1.17	2424	1.79	35.00	0.002	-0.030
NLC	9312	21	0.952	1.10	2584	2.13	34.50	0.003	-0.007
NMK	9012	22	0.985	0.57	1786	0.22	13.63	-0.016	-0.004
NMK	9212	24	1.011	0.42	2623	0.30	19.88	0.001	-0.003
NMK	9312	28	1.031	0.75	2884	0.30	20.25	-0.001	-0.001
NOB	9012	23	1.025	1.08	2487	0.06	20.75	-0.000	-0.001
NOB	9112	28	0.981	1.05	4751	0.12	34.50	0.000	-0.001
NOB	9212	31	1.022	1.55	6226	0.13	43.75	0.000	0.035

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
NOC	9112	15	1.047	1.02	1236	0.39	26.13	0.001	-0.012
NOC	9312	9	1.005	1.00	1828	0.62	39.25	0.016	-0.006
NRCE	9112	13	0.999	1.43	484	0.47	30.00	0.002	-0.014
NRCE	9212	17	0.992	1.22	722	0.48	43.75	-0.002	-0.010
NRCE	9312	18	0.995	0.58	529	0.29	31.50	0.009	-0.094
NT	9012	28	0.935	1.34	6879	1.00	26.25	0.001	-0.031
NT	9112	26	1.012	1.00	11053	1.15	48.88	0.000	-0.004
NT	9212	28	1.100	1.01	10682	1.13	45.38	0.001	-0.034
NT	9312	25	0.936	1.30	7758	0.81	30.75	-0.000	-0.252
NTRS	9012	10	0.989	1.20	1001	0.08	27.50	0.000	-0.004
NTRS	9112	8	0.997	0.99	1721	0.13	51.13	0.000	-0.011
NTRS	9212	14	1.023	0.70	2219	0.14	42.75	0.000	0.003
NU	9012	21	0.994	0.36	2192	0.33	19.88	-0.005	-0.039
NU	9112	18	1.010	0.48	2817	0.41	23.88	0.005	0.012
NU	9212	20	1.010	0.43	3547	0.36	26.88	0.000	0.005
NU	9312	21	1.013	0.55	2953	0.27	24.38	0.004	-0.046
NUE	9012	14	0.995	1.59	1332	1.28	70.88	-0.000	0.038
NUE	9212	17	0.988	1.23	3399	2.28	88.88	0.000	0.007
NW	9312	4	0.980	0.32	15443	0.06	41.75	0.001	-0.002
NWL	9012	14	0.943	1.86	1474	1.69	29.00	0.001	-0.021
NWL	9212	23	0.916	1.52	3192	2.03	38.50	0.000	-0.014
NWL	9312	22	0.950	1.38	3181	1.62	41.88	0.000	0.001
NWNG	9112	13	1.016	0.28	339	0.46	30.63	-0.008	0.067
NWNG	9212	9	1.019	0.09	370	0.50	30.25	0.002	-0.021
NYN	9012	32	1.025	0.66	14232	0.53	70.38	0.000	-0.020
NYN	9112	30	0.992	0.61	16451	0.59	76.63	-0.000	0.002
NYN	9212	32	1.015	0.58	17347	0.62	85.13	-0.000	-0.009
NYN	9312	29	0.996	0.32	16647	0.56	39.13	-0.003	-0.012
NYT	9012	21	0.977	1.02	1592	0.74	23.88	0.000	-0.014
NYT	9112	20	1.001	1.06	1851	0.87	28.00	0.002	-0.068
NYT	9212	18	1.007	1.08	2102	1.05	28.88	-0.001	0.012
NYT	9312	17	1.030	1.08	2805	0.87	27.25	0.002	-0.224
OC	9212	6	1.026	0.56	371	0.23	39.13	-0.000	0.041
OCAS	9012	19	0.969	1.04	734	0.22	41.50	-0.006	-0.068
OCAS	9112	18	1.051	0.67	888	0.25	55.50	0.002	-0.043
OCAS	9212	23	1.037	0.31	1136	0.30	65.00	0.006	-0.014
OCAS	9312	23	1.020	0.65	1148	0.30	64.50	0.001	0.018
ODEP	9112	12	1.013	1.73	1442	2.57	52.88	0.000	-0.038
ODEP	9212	15	0.984	1.91	2021	2.38	35.13	0.000	-0.017
ODEP	9312	15	0.959	2.96	3166	2.16	35.63	0.000	-0.035
OG	9012	12	0.982	1.04	804	0.29	21.00	-0.001	-0.007

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
OGE	9012	19	0.988	0.33	1572	0.62	37.38	0.000	-0.010
OGE	9112	20	0.992	0.30	1774	0.69	39.88	-0.003	-0.009
OGE	9212	22	1.016	0.32	1376	0.53	34.63	0.000	0.016
OGE	9312	23	1.024	0.36	1493	0.54	34.63	0.000	-0.025
OKEN	9012	11	0.992	0.95	615	0.07	22.75	0.002	0.014
OKEN	9212	18	0.973	0.60	1370	0.15	33.00	-0.007	0.021
OKEN	9312	18	0.961	0.37	1211	0.12	29.75	-0.002	-0.034
OLDR	9212	8	0.987	0.84	1261	0.30	26.25	0.026	-0.019
OLN	9012	11	1.040	0.99	717	0.38	41.63	-0.004	-0.009
OLN	9212	11	0.961	0.84	872	0.42	40.75	-0.001	-0.053
OMIC	9112	5	0.964	1.74	247	0.36	6.38	-0.010	0.001
ONE	9012	32	1.014	1.27	4408	0.14	26.50	-0.000	-0.042
ONE	9112	37	1.047	1.26	8831	0.19	50.25	0.000	0.041
ONE	9212	40	0.983	1.10	12329	0.20	50.75	-0.000	-0.021
ONE	9312	39	0.926	1.07	14894	0.18	35.63	-0.000	-0.022
OXY	9012	28	1.025	0.65	5446	0.27	18.50	-0.000	-0.056
OXY	9112	28	0.995	0.98	5364	0.33	19.00	0.001	-0.081
OXY	9212	29	1.046	0.93	5163	0.28	18.63	0.020	-0.172
P	9012	37	0.983	0.81	6759	0.55	25.75	-0.005	0.027
P	9112	34	1.001	0.72	6235	0.54	24.00	0.003	-0.044
P	9212	33	1.062	1.12	6538	0.57	27.38	0.003	-0.033
P	9312	32	1.023	0.64	7583	0.69	29.50	-0.001	0.060
PAC	9012	29	0.887	0.99	18076	0.83	39.75	-0.000	-0.003
PAC	9112	29	1.033	0.76	17895	0.81	42.00	-0.000	-0.005
PAC	9212	31	1.013	0.57	17976	0.79	46.50	-0.001	-0.002
PAC	9312	30	1.004	0.75	22951	0.97	56.38	-0.001	-0.018
PBI	9012	17	1.042	1.32	3128	0.51	47.88	0.001	-0.006
PBI	9212	16	0.993	1.42	6267	0.96	41.38	-0.000	-0.030
PCG	9112	24	0.984	0.36	13571	0.59	30.25	0.002	-0.001
PCG	9212	24	0.999	0.48	14139	0.58	33.13	0.000	-0.017
PCG	9312	28	0.987	0.60	15006	0.55	32.63	-0.008	0.010
PCH	9012	16	0.944	1.52	840	0.49	31.88	-0.008	0.032
PCH	9112	15	1.034	1.28	1111	0.58	42.38	-0.002	-0.079
PCH	9212	13	0.986	1.02	1341	0.67	45.50	-0.004	-0.026
PCH	9312	14	0.968	0.89	1376	0.66	46.88	0.005	-0.030
PCL2	9212	8	0.943	0.66	656	1.11	46.00	0.000	-0.010
PCL2	9312	11	0.974	0.70	1061	1.29	29.63	0.002	0.035
PD	9012	23	0.981	1.45	1950	0.68	57.25	-0.001	-0.083
PD	9112	23	1.020	1.57	2332	0.76	75.75	0.001	-0.011
PD	9212	23	1.011	1.19	3413	0.99	51.75	0.007	-0.076
PD	9312	22	0.997	0.79	3438	0.92	51.75	-0.000	-0.154

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
PEL	9012	24	0.956	0.97	1135	0.17	11.13	-0.008	-0.052
PEL	9112	22	0.991	1.08	1664	0.26	14.38	-0.002	0.017
PEL	9212	20	0.975	1.17	1814	0.26	18.63	0.003	-0.038
PEL	9312	21	1.037	0.87	2850	0.42	24.63	0.003	-0.010
PEP	9012	30	1.053	1.40	20498	1.19	30.25	0.001	-0.000
PEP	9212	32	0.974	0.92	33150	1.58	41.50	0.000	-0.010
PEP	9312	33	0.982	0.60	32650	1.37	39.63	0.000	-0.002
PFE	9012	42	1.050	0.86	13334	1.47	84.50	0.000	-0.005
PFE	9112	41	0.995	1.19	27690	2.87	75.25	0.000	-0.017
PFE	9212	42	1.034	1.26	23573	2.45	66.88	-0.000	0.001
PFE	9312	42	0.926	1.41	22144	2.37	62.63	-0.001	-0.017
PGLO	9312	5	1.093	0.44	6766	0.28	27.25	0.009	-0.008
PGU1	9012	28	0.991	-.43	321	1.16	11.88	0.005	0.016
PGU1	9112	22	0.936	-.16	345	0.98	13.25	0.005	-0.230
PGU1	9212	15	1.013	-.10	468	1.18	15.75	-0.001	-0.005
PGU1	9312	24	1.023	-.26	760	1.53	19.38	0.005	0.035
PMI	9012	11	0.966	0.95	534	0.26	17.88	0.005	0.006
PMI	9112	11	1.133	1.33	1265	0.62	46.88	0.003	-0.008
PMI	9212	12	1.127	1.01	1292	0.65	44.00	0.001	-0.004
PMI	9312	12	0.994	1.04	2561	1.20	83.38	0.001	0.000
PMSC	9012	16	1.006	1.37	801	1.57	46.88	0.002	0.010
PMSC	9312	4	0.944	2.40	702	1.06	31.25	-0.016	-0.158
PNCF	9012	29	1.009	1.62	2066	0.04	28.25	-0.041	0.123
PNCF	9112	29	1.026	1.77	5062	0.11	50.00	0.000	-0.020
PNCF	9212	30	0.939	1.53	6628	0.12	29.75	0.001	-0.016
PNM	9112	14	1.011	0.63	407	0.17	10.88	0.007	-0.005
PNM	9212	14	1.026	0.58	517	0.21	11.00	0.013	0.071
POM	9012	24	0.988	0.58	2044	0.39	20.00	-0.009	-0.033
POM	9112	23	1.002	0.43	2778	0.47	23.50	-0.002	-0.012
POM	9212	26	1.007	0.24	2729	0.44	25.00	0.001	-0.018
POP	9012	10	1.003	1.52	171	0.48	15.38	0.014	0.030
POP	9212	8	1.010	0.80	186	0.50	19.38	0.010	-0.190
POP	9312	11	0.991	0.75	337	0.73	30.38	0.001	-0.105
POT1	9112	15	0.978	0.45	696	0.63	19.25	0.000	0.021
POT1	9212	16	0.928	0.52	784	0.77	18.50	0.000	0.011
POT1	9312	18	0.936	0.86	1096	0.99	26.00	-0.006	0.067
PRD	9012	18	0.998	1.68	1170	0.68	26.88	0.007	-0.023
PRD	9212	16	0.993	0.57	1453	0.72	28.63	-0.008	0.028
PRI2	9312	16	1.086	2.35	4677	2.60	54.25	0.001	-0.176
PROG	9012	14	0.986	0.91	1184	0.43	49.63	-0.003	0.022

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
PROG	9112	12	0.920	0.71	1139	0.38	50.25	-0.007	0.139
PSD	9012	13	1.036	0.46	1132	0.43	21.63	0.007	-0.010
PSD	9212	14	1.016	0.42	1589	0.53	27.25	0.001	0.001
PSR	9112	20	1.016	0.32	1520	0.43	26.13	0.014	-0.011
PSR	9212	21	0.985	0.32	1674	0.44	27.75	-0.010	0.004
PSR	9312	26	1.048	0.73	1942	0.47	31.63	-0.000	-0.029
PWJ	9012	9	1.082	1.24	339	0.01	15.75	-0.003	-0.132
PWJ	9112	8	1.000	1.84	988	0.04	25.00	0.020	0.010
PWJ	9212	9	0.965	2.81	1073	0.04	25.38	0.018	-0.013
PWN	9212	10	0.963	0.56	307	1.41	10.00	0.001	0.033
PZL	9012	21	0.967	0.74	2656	0.50	65.88	-0.002	-0.024
PZL	9112	18	0.993	0.63	2281	0.44	52.50	-0.000	0.083
PZL	9212	20	1.035	0.90	2036	0.45	53.00	-0.003	-0.262
PZL	9312	18	0.992	0.24	2450	0.50	54.88	-0.002	-0.008
S	9012	24	1.043	1.10	8706	0.09	27.75	-0.011	0.042
S	9112	18	1.017	1.26	13033	0.12	42.38	0.007	-0.030
S	9212	16	0.995	0.93	15736	0.18	50.00	-0.005	0.015
S	9312	25	0.958	0.77	18551	0.20	49.00	0.004	-0.013
SBA	9012	4	0.987	1.50	431	3.24	40.88	0.000	-0.014
SBC	9012	34	0.908	0.92	16793	0.75	51.00	-0.018	-0.001
SBC	9112	30	0.997	0.61	19398	0.83	62.00	0.000	-0.003
SBC	9212	32	0.999	0.74	22191	0.93	72.88	-0.015	-0.011
SBC	9312	32	0.948	0.76	24910	1.02	38.13	0.000	-0.007
SBH	9112	24	0.971	0.84	21200	2.76	76.50	0.001	-0.005
SBH	9212	23	1.031	0.82	17690	2.29	36.75	0.002	0.080
SBH	9312	31	0.991	0.81	14672	1.82	30.13	0.001	-0.034
SCAF	9012	13	0.912	2.04	497	3.78	27.25	0.000	0.005
SCAF	9312	17	0.957	2.09	593	1.97	18.63	0.003	-0.087
SCR	9112	4	1.010	1.68	221	0.16	18.75	-0.038	-0.229
SDO	9012	18	0.999	0.54	2511	0.68	44.50	0.001	-0.005
SDO	9112	17	1.009	0.25	2538	0.67	43.50	0.001	-0.008
SDO	9212	18	0.989	0.18	2761	0.65	24.13	0.000	-0.022
SII	9012	14	0.958	1.18	436	1.10	15.63	-0.001	-0.148
SII	9112	13	1.056	0.80	281	0.70	8.38	-0.019	-0.152
SII	9212	14	0.980	0.96	309	0.83	9.88	-0.005	-0.467
SII	9312	15	1.018	0.99	338	0.97	9.75	0.002	-0.012
SLB	9012	29	0.981	0.71	13781	2.23	59.25	-0.000	-0.013
SLB	9112	28	0.999	1.05	14968	2.18	62.63	-0.000	-0.039
SLB	9212	30	0.984	0.78	13845	1.97	58.13	-0.000	-0.036
SLB	9312	33	0.981	0.57	14400	1.81	57.75	-0.003	-0.010
SMBL	9012	12	1.044	2.11	258	0.81	16.00	0.000	-0.161

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
SMBL	9212	8	1.014	1.85	306	0.80	13.75	-0.000	-0.298
SMC	9212	6	0.978	1.05	389	0.50	35.88	0.002	-0.065
SMCH	9012	8	1.125	1.82	320	0.19	7.50	0.012	-0.034
SMCH	9112	10	1.063	1.62	704	0.44	11.38	0.001	-0.028
SMCH	9312	12	0.905	1.41	994	0.49	8.25	-0.012	0.021
SMI	9012	10	0.966	1.45	396	0.32	25.75	-0.006	-0.020
SMI	9112	11	1.114	1.63	553	0.44	34.13	0.000	-0.087
SMI	9212	11	1.021	1.04	635	0.50	39.13	0.001	-0.024
SNA	9012	17	1.011	0.96	1311	1.44	29.88	-0.007	0.035
SNA	9112	17	0.980	1.14	1367	1.49	33.50	-0.001	-0.070
SNA	9212	18	1.056	0.92	1331	1.13	34.50	-0.002	-0.081
SNS	9012	16	0.969	1.50	1045	0.66	29.38	0.000	-0.002
SNS	9112	14	1.057	1.61	1337	0.77	42.13	0.005	-0.003
SNS	9212	14	0.894	1.01	1455	0.80	35.38	0.002	-0.044
SNT	9012	21	1.024	0.78	2010	0.62	42.63	0.001	-0.041
SNT	9112	21	0.951	0.46	1417	0.44	32.13	-0.000	0.022
SNT	9212	19	0.999	1.14	2071	0.65	46.50	0.000	-0.028
SNT	9312	20	1.045	1.13	2517	0.78	31.13	0.003	-0.074
SO	9012	28	1.000	0.43	8799	0.38	26.63	-0.000	0.096
SO	9112	25	1.058	0.42	10851	0.47	33.00	-0.001	0.004
SO	9212	25	0.996	0.44	12184	0.52	38.50	-0.000	-0.008
SO	9312	28	1.013	0.31	14179	0.54	43.50	0.000	-0.002
SRV	9112	9	1.051	0.87	1368	0.64	27.00	0.000	-0.028
SRV	9212	9	1.025	0.86	1404	0.53	18.88	-0.000	-0.014
SVAN	9012	4	0.933	1.09	651	1.31	24.00	-0.000	-0.019
SVAN	9112	5	1.000	0.61	434	0.74	19.50	0.002	-0.018
SWK	9012	17	0.988	1.17	1194	0.79	30.75	-0.002	-0.020
SWK	9112	16	1.027	1.11	1849	1.19	44.38	-0.000	0.001
SWN	9012	5	0.977	0.49	267	0.72	28.00	0.000	-0.021
SWN	9112	8	0.997	0.35	270	0.68	32.75	0.000	-0.033
SWN	9212	6	0.993	0.25	333	0.77	40.50	0.001	-0.027
SWY	9212	12	0.982	1.51	1284	0.24	13.13	0.001	-0.000
SWY	9312	10	1.094	1.33	2157	0.42	22.13	0.004	0.037
TA	9012	25	1.002	1.27	2491	0.07	33.63	-0.013	0.030
TA	9112	12	0.999	1.10	3078	0.09	40.25	0.001	0.017
TA	9212	21	0.992	0.96	3800	0.11	48.00	0.004	-0.006
TAN	9312	15	1.055	1.06	3166	0.98	43.38	-0.005	-0.045
TCFC	9312	8	1.012	1.09	420	0.08	31.00	0.013	-0.010
TCH1	9312	11	0.975	0.81	.	.	116.75	-0.002	-0.035
TE	9012	24	0.982	0.48	1919	0.76	32.25	0.000	-0.026
TE	9112	22	1.013	0.36	2384	0.84	36.88	0.000	-0.009
TE	9212	21	1.017	0.24	2393	0.79	42.13	0.000	0.008

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
TE	9312	25	0.968	0.35	2616	0.83	20.63	-0.000	-0.028
TG	9112	4	1.098	0.61	109	0.32	12.25	0.000	-0.112
TPN	9012	19	0.987	0.54	620	0.49	18.88	-0.015	-0.047
TPN	9112	14	0.995	0.37	399	0.38	10.50	-0.044	0.066
TRB	9012	18	0.982	1.47	2262	0.80	41.88	-0.002	-0.040
TRB	9112	18	1.040	1.39	2646	0.94	45.00	-0.000	-0.083
TRB	9212	18	1.023	1.21	3143	1.14	54.88	0.000	-0.055
TRB	9312	19	1.006	1.06	4027	1.58	60.50	-0.001	-0.037
TRH	9212	14	1.024	0.66	1284	0.52	52.75	0.000	-0.008
TRH	9312	17	0.957	0.74	1199	0.37	46.75	0.001	0.000
TRW	9012	25	1.046	0.94	2265	0.40	41.50	-0.002	0.028
TRW	9112	20	1.006	0.93	2570	0.45	44.00	-0.004	-0.064
TRW	9212	19	1.038	1.16	3611	0.66	56.00	0.000	-0.018
TRW	9312	16	0.991	0.44	4418	0.82	73.50	0.000	-0.020
TTOY	9112	10	1.056	1.11	333	0.85	38.88	0.002	-0.027
TTOY	9212	11	0.971	1.45	414	0.55	11.50	0.001	-0.070
TTX	9212	9	1.016	1.07	249	0.57	8.50	-0.010	-0.046
TX	9012	36	1.006	0.22	15619	0.60	57.63	0.003	-0.017
TX	9112	33	0.984	0.60	15833	0.60	60.88	0.000	0.103
TX	9212	31	1.019	0.61	15460	0.59	59.75	-0.001	-0.017
TX	9312	32	1.001	0.42	16772	0.62	65.63	0.009	-0.002
TXN	9012	29	0.900	1.55	3108	0.61	34.25	0.000	0.202
TXN	9212	21	0.925	1.61	3851	0.74	53.38	-0.000	0.007
TXN	9312	24	0.957	1.88	5767	0.96	70.00	0.000	-0.022
TXT	9212	11	0.997	0.85	3918	0.21	43.00	-0.002	-0.026
TXU	9012	26	0.974	0.46	7214	0.38	37.50	-0.004	0.009
TXU	9112	26	0.981	0.28	8797	0.46	39.38	-0.002	-0.015
TXU	9212	29	1.018	0.42	9236	0.47	46.25	0.002	-0.020
TXU	9312	30	1.041	0.26	9703	0.45	38.38	-0.003	-0.018
UCC	9012	23	1.011	1.22	2410	0.54	37.13	0.000	-0.023
UCC	9112	25	0.959	1.26	3456	0.73	50.75	-0.001	0.022
UCC	9212	24	0.987	1.55	3213	0.67	44.38	-0.002	-0.099
UCL	9012	37	0.941	0.63	6156	0.63	23.50	-0.004	0.108
UCL	9112	33	0.989	0.75	5484	0.55	22.63	-0.001	-0.062
UCL	9212	34	1.066	1.04	6137	0.64	25.75	0.000	-0.025
UCL	9312	39	1.042	0.95	6727	0.72	29.38	-0.001	-0.020
UEP	9012	15	0.963	0.50	3038	0.53	29.00	-0.002	0.059
UEP	9112	19	0.985	0.33	3945	0.68	35.25	0.000	-0.009
UEP	9212	21	1.013	0.23	3817	0.65	38.88	-0.001	-0.012
UHSI	9012	9	0.966	1.47	125	0.23	12.75	-0.000	-0.051

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
UIL	9112	9	1.003	0.26	543	0.24	36.50	0.003	-0.002
UK	9012	26	0.990	0.97	2058	0.23	17.00	0.000	-0.145
UK	9112	26	0.976	1.11	2584	0.37	23.75	-0.009	0.141
UK	9212	27	1.010	1.42	2209	0.44	16.88	0.011	-0.130
UK	9312	25	0.993	0.80	3368	0.71	24.88	0.002	-0.066
UN	9012	11	1.002	0.80	14484	0.90	88.13	0.000	-0.006
UN	9212	13	1.005	0.59	16684	0.99	115.63	0.001	-0.001
UN	9312	14	1.006	0.48	18485	1.11	112.88	-0.006	0.012
UNM	9012	16	1.070	1.21	1548	0.16	59.00	0.005	0.010
UNM	9112	15	0.981	1.72	2714	0.25	76.00	0.002	-0.031
UNM	9212	21	0.980	1.17	3586	0.31	55.88	0.006	-0.008
UNM	9312	20	1.028	1.35	3989	0.32	51.00	0.010	-0.034
UNP	9012	18	1.021	0.80	7072	0.54	72.13	0.001	-0.006
UNP	9112	18	0.965	0.86	10497	0.78	46.50	0.000	-0.002
UNP	9212	18	0.979	1.33	11928	0.84	59.50	-0.003	-0.019
UNP	9312	21	0.940	1.15	12848	0.85	62.13	-0.000	0.013
UPJ	9012	40	1.025	1.29	6704	1.82	40.38	0.003	0.017
UPJ	9112	39	1.010	1.03	7184	1.73	42.50	0.002	-0.003
UPJ	9212	39	0.968	1.17	5630	1.22	29.38	0.005	-0.019
UPJ	9312	39	0.991	0.94	5030	1.04	29.38	0.006	-0.049
USBC	9012	24	1.020	1.69	1222	0.06	20.25	-0.002	-0.014
USBC	9112	24	0.998	2.02	2197	0.11	21.25	-0.007	-0.007
USBC	9212	23	1.052	1.60	2613	0.12	27.63	0.002	-0.011
USBC	9312	24	0.980	0.99	2487	0.11	24.25	0.000	-0.020
USH	9012	17	1.042	1.27	430	0.09	35.00	0.001	-0.055
USH	9212	13	1.004	0.88	816	0.13	39.50	-0.001	0.000
USH	9312	14	1.011	1.24	870	0.12	38.88	0.000	-0.038
USSC	9012	19	1.038	1.00	1739	3.77	76.00	0.000	-0.029
USSC	9112	21	0.903	1.41	5815	7.84	110.25	0.000	-0.071
USSC	9212	21	1.092	2.40	3824	3.27	75.88	0.000	-0.002
USW	9012	30	1.003	0.92	15297	0.56	36.50	0.000	0.001
USW	9112	29	0.983	0.79	15526	0.55	37.00	0.002	-0.028
USW	9212	29	1.020	0.68	15905	0.56	39.00	-0.000	0.007
USW	9312	26	0.992	0.20	20237	0.97	42.88	-0.002	-0.027
UTH	9012	8	1.034	0.13	1285	0.61	15.50	0.007	-0.018
UTH	9212	11	1.018	0.59	1614	1.02	20.50	0.000	-0.081
UTH	9312	16	0.984	0.74	1786	1.33	20.75	0.001	0.113
UTX	9012	27	0.927	1.00	5800	0.36	44.13	0.000	0.020
UTX	9112	26	0.919	1.07	6613	0.41	50.75	0.000	-0.120
UTX	9212	24	0.979	0.85	5957	0.37	46.63	0.000	0.045
UTX	9312	20	1.001	1.00	7815	0.50	64.63	-0.002	-0.093

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
WEN	9012	18	0.978	1.07	605	0.79	7.50	0.000	-0.040
WEN	9112	16	1.018	1.20	962	1.09	12.38	0.000	0.030
WEN	9212	21	0.972	1.20	1248	1.35	12.88	0.000	0.007
WFC	9012	29	0.919	1.82	2977	0.05	48.25	-0.002	0.022
WFC	9112	30	1.029	1.94	3016	0.05	68.75	-0.001	0.016
WFC	9212	31	1.146	1.40	4215	0.08	97.25	0.000	-0.006
WFC	9312	29	0.994	1.71	7221	0.13	133.25	0.003	-0.109
WGR	9312	9	0.955	0.93	840	0.75	33.00	-0.006	0.060
WHR	9012	16	0.993	1.09	1632	0.29	25.00	-0.020	0.083
WHR	9112	14	1.071	1.46	2707	0.42	44.00	0.002	-0.085
WHR	9212	17	1.054	1.51	3125	0.51	51.38	0.003	-0.032
WHR	9312	16	0.996	1.61	4859	0.80	68.63	0.000	-0.036
WII	9212	10	0.963	0.15	234	1.16	7.75	0.000	0.004
WII	9312	14	1.037	0.80	545	1.61	10.25	0.005	-0.102
WIT	9112	10	1.031	1.10	917	0.76	42.50	0.001	0.010
WIT	9212	8	0.979	0.71	1114	0.61	50.13	-0.002	0.013
WJ	9012	13	1.015	0.64	105	0.47	15.25	-0.005	-0.019
WJ	9212	7	0.998	0.72	109	0.52	14.50	0.004	-0.144
WLA	9012	39	0.969	1.22	9068	2.78	70.25	0.000	0.000
WLA	9212	37	0.982	0.89	9355	2.29	64.75	-0.000	-0.006
WLA	9312	38	1.007	0.98	9054	1.87	64.38	-0.000	-0.035
WLMN	9012	15	0.960	1.59	578	0.64	20.25	-0.002	0.005
WLMN	9112	15	1.072	1.40	729	0.84	30.00	0.001	-0.083
WLMN	9212	10	0.936	1.91	695	0.69	20.63	-0.001	-0.124
WLMN	9312	8	1.056	1.23	615	0.60	20.88	0.005	-0.282
WMB	9012	20	1.059	1.14	1070	0.26	29.75	0.003	-0.002
WMB	9112	19	1.031	0.79	1602	0.37	38.88	0.004	-0.075
WMB	9212	15	0.967	0.95	1811	0.36	41.38	0.003	-0.035
WMB	9312	19	0.977	0.58	2513	0.50	25.00	0.003	-0.012
WMOR	9012	8	1.038	0.19	171	0.50	17.50	0.000	0.010
WPO	9012	16	0.998	1.08	2348	1.56	232.00	0.000	-0.026
WPO	9112	13	1.100	0.85	2301	1.54	218.25	0.003	-0.117
WPO	9212	12	1.002	0.84	2711	1.72	237.50	-0.001	-0.005
WPO	9312	13	0.974	0.61	2984	1.83	260.50	0.000	-0.014
WWY	9212	12	0.980	0.89	3812	5.35	29.88	-0.000	-0.008
WX	9012	28	1.043	1.25	8268	0.37	25.88	-0.001	0.009
WX	9112	20	0.967	1.43	6106	0.30	18.38	-0.004	-0.198
WX	9212	21	0.975	1.23	4634	0.43	13.50	0.012	-0.250
WX	9312	18	1.015	0.93	4974	0.47	14.13	0.001	-0.131
WY	9012	25	0.983	1.43	4400	0.26	23.25	-0.001	-0.053
WY	9112	26	1.053	1.20	5562	0.32	31.63	0.002	0.023
WY	9212	25	1.052	1.30	7533	0.41	40.63	0.000	-0.035

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
WY	9312	27	1.027	1.36	9152	0.72	49.25	0.005	-0.041
XON	9012	43	0.999	0.55	64449	0.73	52.50	0.001	-0.007
XON	9112	39	1.015	0.32	75605	0.86	60.50	0.001	-0.000
XON	9212	35	1.049	0.38	75917	0.89	61.25	0.002	0.002
XON	9312	37	1.002	0.53	78401	0.93	66.13	0.006	-0.033
XRX	9012	17	1.131	1.10	3274	0.10	50.38	0.017	-0.013
XRX	9212	13	1.006	1.34	7534	0.22	84.63	0.001	-0.028
ZNAT	9112	10	0.977	0.67	318	0.21	16.13	0.003	-0.003
ZNAT	9312	10	0.978	0.67	422	0.22	23.63	0.004	-0.038

Summary Statistics Data Points in Quarterly Study

BA	9006	22	1.00	1.257	16296	1.032	58.63	0.002	-0.041
BA	9112	21	0.97	1.349	13619	0.750	52.75	0.001	-0.017
BA	9212	18	0.95	1.074	14711	0.719	34.63	0.000	0.011
BAC	9112	21	0.97	1.999	16210	0.090	38.88	0.002	0.007
BAC	9209	21	0.94	1.863	16598	0.089	42.00	0.000	-0.026
BBF	9112	18	1.00	2.203	3987	0.101	33.63	-0.000	-0.002
BBF	9206	16	0.94	2.534	4042	0.105	37.00	0.001	-0.040
BC	9112	5	0.97	1.924	1546	0.810	16.00	-0.010	-0.211
BC	9212	6	0.98	1.751	1715	0.864	16.63	-0.001	-0.142
BCC	9112	16	1.04	1.362	801	0.176	23.88	-0.002	-0.532
BCC	9212	15	1.02	1.314	893	0.198	21.50	0.005	-0.276
BCR	9009	18	0.94	1.301	1624	2.469	15.50	0.000	0.001
BCR	9112	23	1.02	0.962	1750	2.457	31.50	0.000	0.000
BCR	9212	21	1.01	1.148	1315	1.647	34.50	0.000	-0.004
BEC	9212	6	1.03	1.054	762	0.930	24.75	0.000	-0.017
BEL	9112	18	1.02	0.734	22241	0.792	47.13	-0.003	-0.006
BEL	9209	18	0.98	0.634	25838	0.875	47.50	0.002	-0.011
BETZ	9112	15	0.99	1.177	1765	3.456	62.75	0.000	0.005
BETZ	9212	13	0.98	1.202	1234	2.368	61.00	0.000	-0.003
BEV	9009	6	0.97	1.204	653	0.390	7.38	0.002	-0.062
BEV	9112	10	0.96	1.049	966	0.521	9.00	0.000	-0.076
BEZ	9112	5	1.00	0.635	326	1.539	24.25	-0.001	-0.007
BIO	8912	6	1.00	1.142	145	0.680	18.50	0.001	-0.033
BK	8912	8	0.99	0.812	1231	0.027	37.25	-0.002	-0.014
BK	9009	6	1.03	1.300	2159	0.055	17.13	0.000	-0.047
BK	9112	12	1.14	1.795	4357	0.106	37.63	0.000	0.029
BK	9209	10	1.01	1.884	5335	0.117	45.25	0.001	0.027
BKB	9112	11	1.11	2.126	2161	0.067	15.38	0.004	-0.176

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
BKB	9209	11	1.06	2.008	2433	0.060	22.88	-0.000	-0.041
BN	9112	11	0.98	1.046	4026	0.757	32.88	-0.001	-0.014
BN	9209	12	0.99	0.940	2403	0.621	27.50	-0.001	-0.005
BOAT	9112	5	0.99	1.020	2704	0.116	48.25	-0.000	-0.002
BOAT	9212	6	0.96	0.957	3111	0.117	54.75	-0.006	-0.007
BOL	8912	12	0.97	1.268	2101	1.252	57.13	-0.000	-0.006
BOL	9112	9	1.03	1.041	3240	1.729	56.25	0.000	0.039
BOL	9212	11	1.03	1.202	3030	1.206	53.63	0.000	-0.006
BOW	8912	8	1.02	1.328	758	0.330	26.00	-0.001	-0.005
BP	9112	15	0.89	0.258	20659	0.393	55.88	-0.010	0.062
BP	9209	10	1.02	0.826	29072	0.634	42.63	0.000	-0.076
BR	9112	13	1.02	0.533	5155	1.153	35.25	-0.000	0.024
BR	9209	9	1.00	0.692	5495	1.236	40.63	0.000	-0.042
BSE	9212	6	1.02	0.378	1343	0.386	28.13	0.001	-0.002
BT	9112	17	1.02	1.471	5677	0.078	64.75	0.002	-0.014
BT	9203	15	1.11	1.521	6378	0.069	58.25	0.004	-0.026
BUD	9009	14	0.94	1.016	17531	1.755	36.63	0.000	-0.002
BUD	9112	15	0.95	1.096	16287	1.546	55.88	0.000	-0.005
BUD	9206	15	0.97	1.093	13118	1.206	54.50	0.000	-0.012
BVF1	9112	3	1.06	1.249	138	0.053	17.50	-0.053	0.005
BW	9112	7	0.96	1.016	247	0.798	13.88	-0.001	0.038
C	8912	15	0.99	1.115	2838	0.061	16.50	-0.029	-0.099
C	9209	16	1.06	1.307	18836	0.430	26.38	0.010	0.035
CAF	9212	5	1.00	1.186	4789	0.114	92.00	-0.004	-0.184
CAO	9112	11	0.97	1.283	96	0.250	16.63	-0.022	0.030
CAO	9209	5	0.98	1.193	84	0.230	11.25	-0.008	0.097
CAT	8912	18	1.02	1.223	4743	0.397	55.25	0.001	-0.009
CAT	9212	18	0.99	1.249	9066	0.612	56.75	-0.002	0.026
CCE	9009	6	0.98	1.293	1976	0.296	13.13	-0.000	-0.011
CCI	9009	12	0.94	1.327	3592	0.017	12.75	-0.014	0.126
CCI	9112	19	1.02	1.499	8154	0.038	14.75	-0.040	0.003
CCI	9209	12	0.99	1.487	14252	0.066	15.25	0.002	-0.148
CDV	9009	9	0.92	1.606	2262	3.232	15.75	-0.001	-0.010
CDV	9112	19	0.99	1.640	459	0.775	33.13	-0.000	0.018
CE2	9112	3	1.04	1.526	591	1.017	12.13	0.000	0.067
CGP	9009	9	1.02	0.987	2555	0.269	34.50	0.003	-0.086
CGP	9112	11	0.99	0.876	2483	0.235	23.63	-0.018	0.034
CHV	9112	21	0.95	0.519	22600	0.665	65.50	-0.000	0.060
CHV	9209	14	1.00	0.382	28380	0.817	73.50	-0.000	-0.010
CHW	9006	15	0.96	1.154	4299	2.122	25.25	0.000	-0.006
CHW	9112	25	0.99	1.489	4352	1.782	21.25	0.000	-0.025
CHW	9212	20	0.98	1.217	1725	0.552	21.00	-0.000	0.002
CI	8912	18	1.07	0.966	2915	0.046	50.00	0.025	-0.005
CI	9009	12	1.07	1.184	4374	0.066	37.63	-0.017	-0.001

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
CI	9112	14	1.03	1.462	4205	0.060	55.25	-0.000	-0.016
CI	9209	16	0.99	1.420	4519	0.053	51.75	-0.008	-0.028
CIN	9112	5	0.99	0.366	2149	0.447	37.25	-0.003	-0.027
CIN	9212	6	0.98	0.410	2422	0.471	24.38	0.000	-0.033
CP1	9112	8	1.01	0.895	4028	0.253	15.50	-0.059	-0.001
CRBN	9009	12	1.00	1.217	871	2.593	32.50	-0.001	-0.017
CRBN	9112	14	0.98	1.759	721	2.155	24.88	-0.000	-0.014
CRBN	9212	10	1.06	1.594	532	1.578	17.63	0.001	0.071
CSFN	9009	12	1.00	0.978	2624	0.121	23.88	-0.003	0.012
CSFN	9112	17	0.94	1.529	3336	0.141	46.50	-0.000	-0.014
CSFN	9206	18	1.00	1.639	3065	0.130	51.00	0.000	0.004
CSK	9212	11	0.92	0.969	600	0.652	20.38	0.000	0.019
CSN	9112	5	1.02	0.715	1061	0.650	19.50	0.002	0.084
CSR	9212	9	1.01	0.396	5699	0.537	29.88	0.002	-0.003
CSX	9112	9	0.95	1.288	7114	0.545	55.75	0.000	-0.032
CSX	9209	13	1.02	1.237	8527	0.635	61.00	0.000	-0.026
CYPR	9009	14	1.03	1.493	648	1.730	8.88	-0.001	-0.060
CYPR	9212	12	0.97	1.469	493	1.448	10.75	-0.064	-0.145
CYR	9009	20	1.07	1.289	1030	0.955	26.75	0.008	-0.082
CYR	9112	17	1.00	1.583	596	0.583	45.50	0.001	-0.016
CYR	9209	16	1.00	1.646	666	0.569	20.50	0.002	-0.036
D	9009	8	1.01	0.432	6036	0.539	46.63	0.000	0.027
D	9112	7	1.01	0.274	6472	0.513	37.63	-0.000	0.003
D	9209	8	0.98	0.364	7629	0.571	38.13	-0.004	0.015
E	9112	8	0.93	0.552	574	0.135	17.88	-0.016	-0.085
E	9212	8	1.03	0.940	584	0.143	14.00	-0.005	0.063
ED	9112	5	1.00	0.682	7632	0.658	28.13	-0.002	-0.008
ED	9212	8	0.99	0.413	7529	0.558	33.00	0.000	-0.011
EFX	8912	8	1.02	1.033	1320	1.750	15.50	-0.010	-0.213
EFX	9112	5	0.97	1.251	1563	2.205	15.88	0.001	-0.036
EFX	9212	9	0.93	1.094	2048	2.801	20.00	-0.000	-0.002
EK	9009	14	1.03	0.973	15678	0.649	40.00	-0.000	-0.016
EK	9112	10	0.90	1.079	13200	0.570	46.50	-0.004	-0.004
EK	9212	12	0.96	1.043	18594	0.915	49.25	0.000	-0.024
EN	9112	7	1.01	1.148	290	1.139	16.25	-0.003	-0.004
EN	9212	10	0.99	0.907	337	1.199	21.50	-0.002	0.003
EOG	9112	11	0.96	0.592	2350	1.358	17.50	0.000	0.086
ESY	9212	11	0.94	0.699	1470	1.149	42.25	0.000	-0.008
ETN	9009	14	0.97	0.774	2202	0.713	42.00	-0.000	-0.052
ETN	9112	16	0.98	1.023	2830	0.914	67.88	-0.000	-0.021
ETN	9209	17	0.98	0.831	3601	1.102	75.75	-0.001	0.081
EY	9009	6	1.01	1.103	3313	0.419	22.75	-0.001	-0.013
EY	9112	12	0.93	1.264	3388	0.368	25.00	-0.000	-0.013
EY	9212	11	0.94	1.466	2072	1.031	29.00	-0.010	0.149

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
EF	9212	15	1.01	1.202	32186	0.162	50.63	-0.001	-0.051
HAL	9009	12	1.06	1.122	3050	0.608	49.38	0.000	-0.022
HAL	9112	12	1.10	0.681	3082	0.651	28.38	-0.003	-0.108
HAL	9209	16	0.98	1.031	3637	0.673	30.88	0.002	-0.092
HAS	9112	9	1.00	1.401	2844	1.366	41.75	-0.000	-0.030
HAS	9212	10	1.00	1.459	3183	1.388	32.50	0.001	-0.025
HBAN	8912	4	0.98	0.357	651	0.055	19.00	-0.001	0.035
HBAN	9209	6	0.97	0.827	2452	0.139	18.50	0.000	-0.014
HBOL	9112	6	0.93	1.049	1211	1.363	48.50	0.001	-0.037
HBOL	9209	7	0.98	0.826	912	1.039	55.50	-0.003	0.009
HDI	8912	4	0.97	2.254	342	0.840	35.63	-0.000	0.024
HDI	9112	4	0.99	2.443	1425	2.730	51.88	0.000	0.038
HDI	9212	7	0.95	1.969	1677	2.874	32.88	0.001	0.004
HI	9212	9	1.01	1.667	3081	0.093	64.88	-0.000	-0.036
HLT	9112	6	1.01	1.473	2069	0.778	42.75	0.000	-0.007
HLT	9212	9	0.97	1.270	2904	1.086	46.63	-0.002	-0.018
HNM	9112	6	0.98	1.011	676	0.574	24.50	0.002	-0.031
HNM	9212	10	0.93	1.322	775	0.679	26.50	0.003	0.014
HON	9112	12	0.99	1.370	4545	0.933	73.00	0.000	-0.010
HON	9212	11	1.01	0.983	4506	0.980	33.25	0.000	-0.004
HOU	9112	6	1.00	0.359	5941	0.478	41.75	-0.001	-0.018
HOU	9206	7	0.98	0.294	6223	0.509	45.50	-0.002	-0.029
HPC	9112	10	1.04	0.712	2764	0.856	48.13	0.000	0.009
HPC	9209	9	1.00	0.839	4635	1.466	58.25	0.000	0.002
HRD	9112	8	1.06	0.745	907	1.180	48.38	0.000	-0.026
HRD	9212	9	1.01	0.674	886	1.114	22.88	0.000	0.008
HSC	9212	2	0.97	0.509	1014	0.711	39.75	0.004	0.025
HSY	9009	12	0.95	1.034	4002	1.709	35.13	-0.001	-0.040
HSY	9112	19	1.05	0.980	4239	1.586	43.88	0.000	0.007
HSY	9212	17	1.00	0.958	4293	1.504	48.00	0.000	0.000
HTN	9112	4	0.97	1.096	575	1.547	31.25	0.000	-0.017
HUB1	9112	5	0.96	0.768	1735	2.150	57.63	-0.000	-0.009
HUB1	9212	9	1.00	0.558	1692	1.935	56.63	-0.000	-0.007
I	9009	11	1.01	1.129	1883	0.038	18.75	0.004	0.091
I	9112	18	1.08	1.939	3515	0.069	33.88	-0.014	-0.093
I	9209	19	0.99	2.325	4959	0.096	40.75	0.000	-0.016
IBM	9112	19	0.98	0.901	28786	0.332	92.88	-0.003	-0.041
IBM	9212	19	0.98	0.786	32848	0.405	46.88	-0.001	0.176
IBP	9112	6	1.05	0.698	956	0.637	16.75	0.000	-0.002
IFF	9112	10	0.99	1.043	4178	3.296	99.38	0.000	-0.006
IMRI	9212	6	0.95	0.938	135	1.705	16.13	-0.000	0.003
ION	9112	5	1.01	0.554	469	2.088	52.25	0.000	-0.000
IP	9006	10	1.02	1.335	7956	0.533	53.38	0.002	-0.107

Firm	EA	N	CAR	β	MV	MB	P	UE	ΔD
IP	9112	16	1.01	1.097	8172	0.497	72.13	-0.000	0.031
IP	9212	11	0.95	1.267	8393	0.505	61.75	-0.000	-0.018
IPG	9212	5	0.88	1.202	2395	0.835	29.13	-0.000	-0.012
IR	9112	17	1.01	1.443	3047	0.899	59.25	0.001	-0.007
IR	9209	20	1.08	1.756	4026	1.193	32.25	0.000	0.015
JH	9112	5	0.96	0.811	885	2.605	23.25	-0.001	0.004
JP	9009	9	1.01	0.840	1932	0.392	35.00	-0.001	-0.030
JP	9112	8	0.96	0.812	2427	0.464	52.63	0.001	-0.040
JP	9212	9	1.03	0.701	2319	0.411	51.25	0.002	-0.020
JPM	9006	8	1.09	1.315	13006	0.126	38.25	0.003	0.001
JPM	9112	18	0.94	1.328	12598	0.122	65.75	0.000	-0.011
JPM	9209	19	0.98	1.124	13395	0.100	62.38	0.009	-0.020
JR	9112	16	0.99	1.247	1509	0.238	22.50	-0.002	0.080
K	8912	19	0.98	0.893	9155	2.442	64.50	0.001	-0.009
K	9009	18	1.04	1.051	15720	4.004	71.63	0.000	-0.002
K	9112	19	0.93	1.115	15900	3.960	57.25	-0.000	-0.005
K	9209	23	0.98	1.183	12934	3.053	71.38	0.000	0.002
MAS	8912	9	1.03	1.341	2530	0.673	24.38	-0.003	-0.021
MAS	9009	9	0.99	0.795	3549	0.937	14.50	-0.004	0.043
MAS	9112	11	1.03	1.312	4517	1.133	27.25	-0.014	-0.194
MAS	9206	9	1.03	1.373	5655	1.406	26.88	0.000	0.008
MAT	9112	8	0.99	1.924	2439	1.935	33.75	-0.001	-0.005
MAWS	9212	10	0.89	1.104	203	0.306	10.75	-0.001	0.018
MCAW	9212	5	1.06	1.657	10532	1.162	34.50	-0.001	0.089
MCD	9009	18	0.94	1.180	13631	1.201	26.25	0.000	0.023
MCD	9206	15	0.97	1.082	20161	1.675	43.63	-0.000	-0.018
MCIC	9112	21	1.05	1.392	10421	1.077	33.50	0.000	0.018
MCIC	9203	20	1.01	1.335	15283	1.355	33.13	-0.000	-0.043
MCL	8912	5	1.02	1.124	2180	1.007	26.38	0.000	-0.007
MCN2	9112	4	1.00	0.050	900	0.546	23.63	-0.001	0.033
MD	9112	13	0.99	1.494	1891	0.137	69.63	0.006	0.062
MD	9209	12	1.12	1.983	4208	0.350	52.63	0.006	-0.053
MEA	9112	16	1.02	1.491	2247	0.557	37.25	0.001	-0.070
MEA	9212	13	1.00	1.565	2663	0.640	38.25	-0.001	-0.051
MER	8912	6	0.97	1.571	2072	0.030	23.00	-0.000	0.061
MER	9112	6	0.91	2.141	6164	0.058	59.25	-0.000	-0.077
MES	9112	9	1.01	1.318	5564	1.320	49.38	0.000	-0.033
MES	9212	10	1.03	1.351	4280	1.002	49.38	-0.002	-0.005
MFN	9112	5	1.04	1.550	1280	2.026	25.63	-0.000	0.005
MHP	9112	7	0.99	0.812	3016	1.202	59.25	-0.000	-0.012
MHP	9212	11	0.99	0.607	3342	1.083	62.13	-0.000	-0.026
MNCO	9112	3	1.03	1.454	764	0.072	47.50	0.007	-0.065
MNCO	9212	6	1.01	1.293	873	0.086	54.25	0.000	0.010
MO	9009	15	0.99	1.244	73818	1.558	48.00	-0.000	-0.016

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
MO	9209	16	0.95	0.986	48788	0.953	77.88	-0.000	-0.004
MOB	9009	20	0.96	0.820	27035	0.641	57.25	-0.002	0.042
MOB	9112	22	0.98	0.388	25175	0.621	67.38	-0.000	0.060
MOB	9209	16	1.01	0.657	31505	0.776	63.75	0.002	-0.044
MOT	9009	20	0.91	1.401	8626	0.920	53.00	-0.001	0.030
MOT	9112	20	1.07	1.266	14092	1.326	77.63	0.000	-0.033
MRK	9009	19	1.01	0.995	64354	6.775	78.50	-0.000	0.004
MRK	9112	23	1.00	1.087	49651	4.479	152.38	0.000	-0.002
MRK	9209	25	0.94	0.971	43104	2.163	42.13	-0.000	-0.007
MS	9112	6	0.97	1.692	4225	0.053	63.63	0.004	-0.041
MUR	9112	4	1.00	0.272	1592	0.822	36.13	-0.003	0.046
MYG	9112	8	1.05	0.938	1586	0.634	17.88	-0.002	0.048
MYG	9212	9	1.01	1.208	1921	0.778	15.38	0.000	-0.051
N	9009	13	1.04	1.305	3241	0.724	25.13	0.001	0.138
NBD	9112	16	0.99	1.288	5253	0.128	28.63	0.000	0.010
NBD	9209	17	0.94	1.281	4781	0.117	28.63	-0.001	0.018
NBL	9112	9	0.92	0.727	786	1.257	12.38	-0.005	0.132
NBL	9212	8	1.01	0.747	1323	1.239	18.50	-0.001	-0.023
NEM	9112	11	0.97	-0.070	2803	2.307	44.38	-0.000	-0.017
NEM	9212	5	1.03	-0.310	3909	3.295	38.88	-0.004	0.062
NES	9209	6	0.99	0.390	2542	0.530	35.13	0.000	-0.027
NGC	9112	9	0.97	-0.210	3395	3.750	42.50	0.000	-0.005
NGC	9212	6	1.08	-0.430	4942	4.836	30.25	-0.000	-0.179
NGE	9112	7	0.98	0.391	2257	0.436	27.63	-0.001	-0.012
NLC	9112	14	0.97	1.057	2424	1.795	35.88	0.000	-0.001
NLC	9212	15	1.04	1.172	2584	2.131	35.00	0.001	-0.021
NMK	9209	6	0.99	0.593	2884	0.306	19.00	-0.001	-0.014
NOB	9112	18	0.98	1.059	6226	0.133	34.50	0.000	-0.001
NOB	9206	12	0.96	1.396	7122	0.140	37.88	0.000	0.004
NOC	9009	11	1.00	0.340	1236	0.395	15.88	0.018	-0.034
NOC	9112	12	1.04	1.021	1617	0.512	26.13	0.000	-0.018
NRCE	9112	5	0.99	1.437	722	0.484	30.00	0.002	-0.015
NRCE	9209	6	0.92	1.400	529	0.297	38.75	-0.003	0.006
NT	9009	9	1.03	1.027	11053	1.159	25.63	0.001	0.062
NT	9112	11	1.01	1.007	10682	1.139	48.88	0.001	-0.005
NT	9206	14	0.89	1.022	7758	0.818	34.63	-0.004	-0.040
NTRS	9009	5	1.00	1.060	1721	0.130	23.88	0.000	-0.010
NTRS	9112	5	0.99	0.990	2219	0.148	51.13	0.000	-0.011
NTRS	9212	8	1.02	0.707	2112	0.125	42.75	0.000	0.004
NU	9112	5	1.01	0.480	3547	0.363	23.88	0.005	0.015
NU	9212	9	1.01	0.432	2953	0.277	26.88	-0.001	0.003
NUE	9212	11	0.98	1.232	4615	2.523	88.88	0.000	0.007
NWL	9009	11	0.96	1.754	2842	2.734	20.50	0.000	-0.055

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
NWL	9209	16	1.03	1.176	3181	1.629	39.00	0.000	-0.035
NWNG	9112	5	1.01	0.281	370	0.505	30.63	-0.008	0.067
NWNG	9212	4	1.01	0.099	451	0.532	30.25	0.003	-0.011
NYN	9112	19	0.99	0.614	17347	0.626	76.63	-0.000	0.018
NYN	9206	20	0.99	0.527	16647	0.565	80.88	0.000	-0.002
NYT	9112	8	1.00	1.063	2102	1.054	28.00	0.006	-0.068
NYT	9212	10	1.00	1.082	2805	0.872	28.88	-0.001	0.018
OCAS	9009	12	1.01	0.997	888	0.252	30.75	0.008	0.014
OCAS	9112	9	1.05	0.671	1136	0.302	55.50	0.007	-0.044
OCAS	9209	8	0.97	0.391	1148	0.301	62.13	-0.003	0.006
ODEP	9112	7	1.01	1.730	2021	2.382	52.88	-0.000	0.004
ODEP	9212	12	0.98	1.911	3166	2.163	35.13	0.000	-0.011
OGE	9112	6	0.99	0.304	1376	0.531	39.88	-0.003	-0.009
OGE	9206	6	1.00	0.288	1493	0.547	33.75	-0.006	-0.007
OKEN	9209	9	0.99	0.874	1211	0.123	28.50	0.001	0.004
OLDR	9212	3	0.98	0.847	1173	0.192	26.25	0.000	-0.019
OLN	9212	8	0.96	0.845	943	0.489	40.75	-0.001	-0.054
ONE	9112	21	1.04	1.267	12329	0.201	50.25	0.000	0.042
ONE	9203	18	1.05	1.287	14894	0.186	44.88	0.000	-0.024
OVWV	9212	3	0.96	0.570	361	0.130	35.50	-0.000	-0.011
OXY	9112	16	0.99	0.985	5163	0.289	19.00	0.000	-0.062
OXY	9209	13	0.94	0.904	5195	0.303	15.88	0.014	-0.165
P	9006	18	1.01	1.105	6235	0.543	28.50	-0.000	-0.012
P	9112	20	1.00	0.723	6538	0.570	24.00	0.000	-0.045
P	9209	18	1.01	0.817	7583	0.698	25.25	-0.003	-0.028
PAC	9112	18	1.03	0.767	17976	0.798	42.00	0.000	0.002
PAC	9209	19	0.97	0.638	22951	0.979	43.13	-0.000	-0.007
PBI	9009	7	1.03	1.289	5011	0.785	33.50	0.000	-0.022
PBI	9206	7	1.00	1.345	6544	0.963	31.88	0.000	-0.013
PCG	9003	7	0.98	0.505	13571	0.593	21.38	-0.005	-0.014
PCG	9112	7	0.98	0.368	14139	0.585	30.25	0.004	0.013
PCG	9212	8	0.99	0.485	15006	0.552	33.13	-0.001	-0.028
PCH	9112	10	1.03	1.287	1341	0.671	42.38	-0.002	-0.007
PCH	9212	8	0.98	1.023	1376	0.666	45.50	-0.003	0.023
PCL2	9212	3	0.94	0.669	1061	1.299	46.00	0.000	-0.010
PD	9009	10	1.01	1.632	2332	0.764	47.63	0.003	-0.024
PD	9112	13	1.02	1.570	3413	0.992	75.75	-0.000	-0.011
PD	9209	12	1.01	1.421	3438	0.924	45.38	0.002	-0.143
PEL	9112	9	0.99	1.086	1814	0.261	14.38	-0.001	0.014
PEL	9209	8	0.98	1.031	2850	0.423	19.25	0.002	0.035
PEP	9009	13	1.03	1.422	26731	1.424	23.63	0.000	0.001
PEP	9212	20	0.97	0.926	32650	1.377	41.50	0.000	-0.010
PFE	8912	21	1.01	0.988	13334	1.473	70.50	-0.000	-0.021

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
PFE	9009	19	1.04	1.073	27690	2.874	74.13	0.000	-0.009
PFE	9112	26	0.99	1.193	23573	2.458	75.25	-0.000	-0.006
PFE	9212	25	1.03	1.269	22144	2.373	66.88	-0.000	0.004
PGU1	9112	7	0.93	-.160	468	1.188	13.25	0.005	-0.071
PGU1	9212	7	1.01	-.100	760	1.535	15.75	-0.002	0.027
PMI	9112	7	1.13	1.337	1292	0.660	46.88	0.003	-0.007
PMI	9212	6	1.12	1.013	2561	1.210	44.00	0.001	-0.004
PNCF	9009	11	0.95	1.365	5062	0.113	16.88	-0.016	0.036
PNCF	9112	12	1.02	1.772	6628	0.129	50.00	0.000	-0.016
PNCF	9209	18	0.98	1.526	6806	0.110	53.25	0.000	-0.007
PNM	8912	4	0.97	0.677	407	0.174	12.38	-0.013	-0.129
PNM	9212	5	1.02	0.584	470	0.212	11.00	0.006	0.091
POM	9112	6	1.00	0.439	2729	0.444	23.50	-0.002	-0.008
POM	9209	7	0.98	0.343	3151	0.473	25.13	-0.002	-0.004
POP	9212	5	1.01	0.803	337	0.739	19.38	0.010	-0.191
POT1	9112	5	0.97	0.455	784	0.777	19.25	0.001	0.099
POT1	9212	4	0.92	0.528	1096	0.999	18.50	0.001	0.052
PPG	9112	12	1.00	1.106	6992	1.235	56.63	0.000	-0.002
PPG	9212	10	0.98	1.590	8107	1.434	62.50	-0.000	-0.005
PPL	8912	5	1.00	0.474	3310	0.428	40.25	0.004	0.021
PPL	9112	6	1.00	0.369	4139	0.505	49.38	-0.001	-0.011
PPL	9212	9	0.98	0.265	4108	0.434	27.50	0.000	-0.006
PRD	9212	9	0.99	0.574	1568	0.709	28.63	-0.009	0.029
PRI2	9209	11	1.00	2.689	4677	2.608	39.75	-0.000	-0.037
PROG	9112	6	0.92	0.716	1954	0.650	50.25	-0.007	0.139
PSR	9009	4	0.98	0.334	1520	0.438	21.75	0.006	0.005
PSR	9112	7	1.01	0.320	1674	0.445	26.13	0.013	-0.013
PSR	9212	7	0.98	0.324	1942	0.479	27.75	-0.009	0.005
PWJ	9112	6	1.00	1.843	1073	0.040	25.00	0.007	0.011
PWJ	9212	6	0.96	2.819	1387	0.037	25.38	0.001	-0.014
PWN	9212	6	0.96	0.563	266	1.086	10.00	-0.000	0.033
PZL	9112	7	0.99	0.631	2036	0.457	52.50	-0.004	0.207
PZL	9209	5	1.00	0.957	2450	0.502	56.50	-0.002	0.100
RBD	9212	13	1.01	1.127	5572	3.683	32.88	-0.000	0.005
RBOK	8912	9	1.07	1.141	1316	0.938	16.13	0.003	0.021
RBOK	9112	9	1.08	1.936	3038	2.258	32.75	0.000	-0.015
RBOK	9212	9	1.02	2.134	2511	1.804	37.00	-0.000	0.013
RDR	9009	14	0.96	1.327	1492	0.294	13.13	-0.003	0.073
RGO	9112	3	0.99	0.176	529	0.825	7.13	-0.026	0.035
RNB	9009	6	0.97	0.798	2440	0.078	39.25	-0.001	0.015
RNB	9112	6	0.95	1.115	2453	0.066	45.25	-0.000	-0.003
ROAD	9112	10	1.06	1.151	2702	1.628	71.25	0.002	-0.008
ROH	9112	12	1.00	1.578	3615	1.049	45.88	-0.000	-0.015
ROH	9212	14	1.01	1.050	4025	1.142	54.88	-0.002	0.004

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
RTC	9009	7	1.02	1.469	1023	0.693	26.50	-0.001	0.042
RTC	9212	8	1.00	0.410	1533	1.015	37.50	0.000	-0.038
RTN	9006	15	1.02	0.763	5546	0.911	63.63	0.000	-0.052
RTN	9112	19	1.00	0.291	6953	1.156	87.25	-0.000	-0.006
RTN	9212	14	1.01	0.600	8924	1.230	52.63	0.000	-0.007
S	9112	9	1.01	1.263	15736	0.188	42.38	0.003	-0.001
S	9212	8	0.99	0.938	18551	0.204	50.00	-0.002	0.023
SBC	9112	18	0.99	0.616	22191	0.932	62.00	-0.000	-0.003
SBC	9209	18	0.98	0.570	24910	1.025	66.38	0.000	-0.009
SBH	9112	7	0.97	0.847	17690	2.298	76.50	0.000	-0.001
SBH	9212	8	1.03	0.822	14672	1.823	36.75	0.000	0.108
SCR	9112	4	1.01	1.687	180	0.127	18.75	-0.022	-0.059
SDO	9112	3	1.00	0.250	2761	0.657	43.50	-0.000	-0.008
SDO	9212	6	0.98	0.185	2898	0.616	24.13	0.000	-0.022
SDW	9112	4	1.00	1.239	165	0.181	15.00	-0.019	-0.630
SII	8912	6	1.02	0.437	436	1.101	13.25	-0.012	-0.395
SII	9112	8	1.05	0.806	309	0.833	8.38	-0.015	-0.011
SII	9212	11	0.98	0.964	338	0.972	9.88	-0.006	-0.165
SLB	9112	19	0.99	1.057	13845	1.976	62.63	-0.000	-0.023
SLB	9212	17	0.98	0.789	14400	1.819	58.13	-0.000	-0.023
SMBL	8912	10	1.05	1.836	258	0.819	8.88	-0.001	-0.074
SMBL	9212	6	1.01	1.858	435	1.037	13.75	0.000	-0.035
SMC	9212	5	0.97	1.058	740	0.899	35.88	0.000	-0.066
SMCH	9112	6	1.06	1.620	1436	0.840	11.38	-0.002	-0.028
SMI	9112	8	1.11	1.632	635	0.508	34.13	0.001	-0.087
SMI	9212	7	1.02	1.042	664	0.514	39.13	0.001	-0.025
SNA	9112	10	0.98	1.148	1331	1.130	33.50	-0.002	-0.029
SNA	9212	11	1.05	0.921	1612	1.323	34.50	-0.001	-0.025
SNS	8912	11	1.05	1.010	1045	0.661	63.38	0.000	-0.059
SNS	9112	11	1.05	1.613	1455	0.807	42.13	0.008	-0.053
SNS	9212	10	0.89	1.016	1405	0.929	35.38	0.001	-0.020
SNT	9112	10	0.95	0.468	2071	0.654	32.13	-0.001	0.046
SNT	9209	7	1.01	0.835	2517	0.783	44.13	0.003	-0.017
SO	9009	6	1.00	0.446	10851	0.477	26.13	0.001	-0.007
SO	9112	6	1.05	0.428	12184	0.528	33.00	-0.000	0.004
SO	9206	8	0.99	0.320	14179	0.547	36.25	0.000	-0.007
SPBC	9112	5	0.98	1.646	280	0.080	13.38	0.009	-0.045
SPBC	9212	5	1.02	1.509	369	0.100	23.25	0.001	-0.025
SPP	9112	17	0.99	0.960	2642	0.419	40.13	-0.000	0.037
SPP	9212	14	1.06	1.511	3044	0.460	38.38	-0.000	-0.050
SRV	9112	5	1.05	0.874	1404	0.538	27.00	0.000	-0.029
SRV	9212	4	1.02	0.866	2228	0.605	18.88	-0.000	-0.014
SVAN	9112	4	1.00	0.612	400	0.629	19.50	0.001	-0.018
SWK	9112	9	1.02	1.116	1931	1.201	44.38	-0.000	0.001

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
SWN	9212	4	0.99	0.259	462	1.038	40.50	0.001	-0.032
SWY	9212	9	0.98	1.512	2157	0.425	13.13	0.000	-0.000
TA	9112	7	0.99	1.104	3800	0.118	40.25	0.001	0.018
TA	9209	7	0.97	0.832	4336	0.120	43.25	-0.000	-0.065
TE	9009	4	1.02	0.559	2384	0.841	29.50	-0.000	0.024
TE	9112	6	1.01	0.365	2393	0.791	36.88	0.000	-0.011
TE	9212	9	1.01	0.249	2616	0.836	42.13	0.000	0.007
TGT	9112	5	1.10	1.087	5890	0.355	37.00	0.012	-0.083
TGT	9212	10	1.05	1.107	8935	0.581	43.63	-0.000	-0.022
TIN	9112	12	1.00	1.505	2845	0.264	53.25	-0.002	0.016
TIN	9212	12	1.03	1.762	2795	0.234	51.38	-0.002	-0.004
TKR	8912	5	0.96	1.213	620	0.342	26.88	-0.011	-0.099
TRB	8912	9	0.98	1.192	2262	0.800	42.25	0.001	-0.013
TRB	9112	8	1.04	1.397	3143	1.142	45.00	-0.000	-0.013
TRB	9212	12	1.02	1.217	4027	1.588	54.88	0.000	-0.053
TRH	9212	7	1.02	0.668	1199	0.378	52.75	0.000	-0.008
TRW	9112	11	1.00	0.936	3611	0.662	44.00	-0.004	0.004
TRW	9212	10	1.03	1.166	4418	0.828	56.00	0.000	-0.009
TTOY	8912	3	1.00	1.576	70	0.219	20.38	-0.005	-0.033
TTOY	9112	5	1.05	1.111	414	0.552	38.88	0.001	-0.019
TTOY	9212	6	0.97	1.454	290	0.406	11.50	0.000	-0.053
TTX	9212	6	1.01	1.079	203	0.428	8.50	-0.005	-0.048
TX	9006	20	1.03	0.423	15833	0.605	62.25	0.000	0.026
TX	9112	20	0.98	0.604	15460	0.595	60.88	0.000	0.102
TX	9209	15	0.98	0.595	16772	0.630	61.75	-0.000	-0.094
TXN	9112	14	1.04	1.927	3851	0.743	35.63	0.008	0.177
TXN	9212	16	0.92	1.614	5767	0.962	53.38	-0.000	0.016
TXT	9212	7	0.99	0.853	5150	0.262	43.00	-0.001	-0.019
TXU	9112	9	0.98	0.284	9236	0.475	39.38	-0.000	-0.015
TXU	9212	10	1.01	0.429	9703	0.451	46.25	-0.003	-0.002
UCC	9112	14	0.95	1.269	3213	0.678	50.75	-0.002	0.027
UCC	9212	13	0.98	1.551	3326	0.710	44.38	-0.000	-0.006
UCL	9009	19	1.00	0.770	5484	0.558	28.88	0.005	-0.156
UCL	9112	23	0.98	0.755	6137	0.649	22.63	0.001	-0.032
UCL	9209	19	1.00	1.001	6727	0.727	26.38	-0.000	0.083
UEP	9112	6	0.98	0.334	3817	0.658	35.25	-0.002	-0.010
UEP	9212	7	1.01	0.237	4008	0.608	38.88	0.000	-0.012
UK	9009	17	1.01	0.881	2584	0.379	15.63	0.011	0.038
UK	9112	15	0.97	1.114	2209	0.447	23.75	-0.008	0.143
UK	9212	17	1.01	1.422	3368	0.718	16.88	0.001	-0.011
UNM	9112	6	0.98	1.726	3586	0.320	76.00	-0.000	-0.027
UNM	9209	9	1.00	1.657	3989	0.321	45.75	0.002	-0.014
UNP	9112	12	0.96	0.863	11928	0.846	46.50	-0.000	0.000

<i>Firm</i>	<i>EA</i>	<i>N</i>	<i>CAR</i>	β	<i>MV</i>	<i>MB</i>	<i>P</i>	<i>UE</i>	ΔD
UNP	9212	13	0.97	1.331	12848	0.856	59.50	-0.001	-0.021
UPJ	9009	19	1.01	1.122	7184	1.732	36.50	0.001	-0.003
UPJ	9112	22	1.01	1.033	5630	1.223	42.50	0.001	0.003
UPJ	9212	22	0.96	1.170	5030	1.044	29.38	0.002	-0.003
USBC	9112	15	0.99	2.027	2613	0.126	21.25	-0.000	-0.008
USBC	9209	14	0.93	2.080	2487	0.116	21.38	-0.007	0.000
USH	9009	6	0.93	1.054	719	0.135	27.00	0.000	-0.011
USH	9212	8	1.00	0.886	870	0.129	39.50	0.000	0.001
USSC	9112	18	0.90	1.412	3824	3.274	110.25	0.000	-0.026
USSC	9212	18	1.09	2.402	1266	1.081	75.88	-0.000	-0.013
USTC	9009	2	1.00	0.751	391	0.134	27.75	-0.059	-0.090
USW	9112	15	0.98	0.797	15905	0.569	37.00	0.003	-0.019
USW	9212	15	1.02	0.686	20237	0.979	39.00	-0.000	0.013
UTH	9212	4	1.01	0.593	1786	1.334	20.50	-0.001	0.002
UTX	9112	15	0.91	1.072	5957	0.374	50.75	0.000	-0.040
UTX	9209	14	0.95	1.010	7815	0.500	45.50	-0.000	-0.012
WEN	9212	14	0.97	1.205	1751	1.757	12.88	0.000	-0.002
WFC	9009	11	1.01	1.455	3016	0.056	44.00	-0.001	0.006
WFC	9112	22	1.02	1.949	4215	0.080	68.75	-0.002	0.084
WFC	9209	15	0.98	2.233	7221	0.138	64.13	-0.017	0.047
WHR	9112	9	1.07	1.462	3125	0.511	44.00	0.003	-0.014
WHR	9212	11	1.05	1.511	4859	0.804	51.38	0.003	-0.007
WII	9212	8	0.96	0.154	545	1.618	7.75	-0.001	-0.000
WIT	9112	6	1.03	1.109	1114	0.615	42.50	0.001	0.011
WIT	9212	3	0.97	0.714	1610	0.875	50.13	-0.001	0.013
WJ	9212	5	0.99	0.721	151	0.684	14.50	0.002	-0.098
WLA	9209	22	1.00	1.078	9054	1.875	67.25	0.000	-0.009
WLMN	8912	9	1.01	1.724	578	0.649	28.00	0.000	0.024
WLMN	9112	10	1.07	1.404	695	0.697	30.00	-0.000	-0.021
WLMN	9209	9	1.03	1.605	615	0.605	20.25	-0.002	-0.042
WMB	9112	8	1.03	0.791	1811	0.364	38.88	0.002	-0.027
WMB	9212	6	0.96	0.950	2513	0.500	41.38	0.003	-0.036
WPO	9112	8	1.10	0.856	2711	1.729	218.25	0.002	-0.012
WPO	9212	8	1.00	0.845	2984	1.839	237.50	-0.001	-0.006
WWY	9209	8	1.00	0.958	5136	6.300	33.63	0.000	-0.019
WX	9112	11	0.96	1.433	4634	0.435	18.38	-0.004	-0.059
WX	9212	11	0.97	1.230	4974	0.471	13.50	-0.006	-0.135
WY	9112	16	1.05	1.209	7533	0.415	31.63	0.003	0.032
WY	9212	16	1.05	1.301	9152	0.724	40.63	0.000	-0.029
XON	9009	20	0.96	0.489	75605	0.863	47.75	-0.001	0.025
XON	9112	21	1.01	0.327	75917	0.893	60.50	-0.000	0.000
XON	9209	15	0.98	0.509	78401	0.932	61.88	0.000	-0.007
XRX	8912	6	1.01	1.118	3274	0.104	55.38	0.005	0.007

Firm	EA	N	CAR	β	MV	MB	P	UE	ΔD
XRX	9212	8	1.00	1.341	9306	0.240	84.63	0.001	-0.030
ZNAT	9112	5	0.97	0.676	372	0.218	16.13	-0.005	-0.004

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