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SEC v. Universal Express, Inc.: An Event Study of News Releases and Information Asymmetry*

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This article examines a single firm's stock trading volume and the effects of multiple, positive informational news releases. Despite positive news releases, the firm's stock price declined. The firm claimed that their declining stock price was due to naked shorting, an illegal form of stock price manipulation. The Securities and Exchange Commission (SEC) issued a litigation release on March 24, 2004, addressed this complaint, found no evidence to support the firm's naked shorting claims, but, instead, alleged that the firm sold additional shares, fraudulently. The SEC also provided insights into additional matters involving hidden or private information and misleading, public information disseminated by the firm. Investigative- and forensic-based findings are consistent with the event-based allegations made by the SEC in their litigation release.

KEYWORDS: Information asymmetry, Securities and Exchange Commission (SEC), naked shorting, event study

... the contemporary topics of shorting, naked-shorting, and market maker manipulation ... involve the establishment and preservation of condition of *information asymmetry, hidden and private* information ... increasingly, these matters, which are more prevalent in the less efficient small – and micro-cap markets, are drawing the attention of the SEC and other regulators (Cataldo 2003, 131-132).

INTRODUCTION

The Securities Exchange Commission (SEC) and the National Association of Securities Dealers (NASD) are taking formal, regulatory actions to reduce or eliminate what is known

* Data used for the statistical analyses contained in this article is available on the author's faculty website. An earlier version of this article, complete with statistical results, was provided, pro bono, to relevant parties associated with the SEC litigation release. Editorial comments made by Carol Willard on an earlier draft of this article are appreciated

as “naked short selling,” imposing more rigorous requirements on U.S. broker-dealers.² Universal Express, Inc. (Universal) was one of more than 100 firms claiming naked short selling had artificially depressed the price of the firm’s stock.³ On March 24, 2004, the SEC filed a complaint seeking a temporary restraining order against Universal, alleging fraudulent stock distribution schemes and false or misleading press releases.

This article uses the SEC filings for the Universal case to investigate and forensically examine and test event dates and their effect on the trading volume and, to a lesser extent, the price of Universal stock. This examination includes event dates identified by the SEC which are used to develop a series of simple regression models (SEC 2004). News event dates are also developed from the Universal corporate website, where a rich archive of news and public relations releases were identified and captured.

Universal represents a case where information asymmetry, hidden and private information may be examined in the theoretical frameworks of agency theory and market efficiency.⁴ Claims of naked short selling may be characterized as an anti-shorting action, designed to provide support for the firm’s stock price per share (PPS). Other anti-shorting strategies have been examined and characterized as a signaling mechanism, where monitoring insiders for selling or shorting may suggest that the firm is overvalued (Lamont 2003). In the case of Universal, sales of large amounts of common stock, following a favorable court judgment, appeared to be inconsistent with the maximization of Universal’s PPS.

The remainder of this article is developed, as follows: the second section contains some background information on Universal. The relevant literature on neglected firms is reviewed in the context of this over-the-counter (OTC) bulletin board (BB) firm/stock. The third section provides for exploratory regression model development, beginning with Universal news

² See Securities and Exchange Commission (SEC) Release No. 34-48709, Proposed Rule: Short Sales (October 29, 2003) at <http://www.sec.gov/rules/proposed/34-48709.htm>; SEC Release No. 34-48788, Prompt Receipt and Delivery of Securities – the “Affirmative Determination” Rule (November 14, 2003), 68 Federal Register 65987 (November 24, 2003) at <http://www.sec.gov/rules/sro/34-49285.htm>; National Association of Securities Dealers (NASD) Notice to Members (NTM) 04-03, Amendments to NASD Rule 3370, Affirmative Determination Requirements (January 20, 2004), 15-18 at <http://www.nasdr.com/pdf-text/0403ntm.pdf>; NASD NTM 04-08, Effective Date of Amendments to NASD Rule 3370 (Affirmative Determination Requirements) Extended to April 1, 2004 (February 18, 2004), 87-88 at <http://www.nasdr.com/pdf-text/0408ntm.pdf>; and SEC Release No. 34-49385, Effective Date for NASD Rule 3370, Affirmative Determination Requirements (February 19, 2004) at <http://www.sec.gov/rules/sro/34-49285.htm>.

³ See <http://www.investrend.com/articles/article.asp?analystId=0&id=7942&topicId=160&level=160>.

⁴ This article does not directly test for market efficiency, per se, as hypotheses or tests of “normal” rates of return are not conducted.

releases containing selected quantitative information. Universal's divisional news releases also are examined in this section. Results are consistent with financial results, and also with the trading volume approach used by the SEC. In the fourth section, models are developed for SEC reported time periods and events dates. Results, with respect to a simple ranking of statistical significance are consistent with the relative importance suggested by the SEC. The fifth section examines the impact of Universal's naked shorting statements, the issuance of the SEC litigation release (LR), and variables selected from models developed and tested in earlier sections. In the final two sections, limitations are noted and SEC policy and academic research recommendations are provided.

BACKGROUND – INFORMATION ASYMMETRY

The announcement of a \$389 million jury award to Universal (OTCBB: USXP)⁵ occurred on July 26, 2001.⁶ The announcement resulted in a PPS increase from \$0.015 to \$0.28 (July 31, 2001). The judgment was reported by Universal to be “final and non-appealable.”

Universal's June 30, 2001, 10-KSB was filed with the SEC on October 17, 2001. Universal reported 84.9 million shares issued and outstanding and 147 million shares authorized. Therefore, on a per share basis, this judgment amounted to \$4.58.⁷ This estimate presumes that the entire amount is collectible. It does not consider attorney's and collection fees.

At the date of SEC LR (SEC 2004) Universal had more than 650 million shares issued and outstanding. The SEC action did not appear to be motivated by Universal announcements of the initial or subsequent judgment announcements. One announcement provided an update. Due to post-judgment interest, the \$389 million had increased by \$137 million, to \$526 million. Despite this increase, by the date of the SEC LR, the Universal judgment had decreased from \$4.58 per share (July 26, 2001) to \$0.81 per share (March 24, 2004).

⁵ The over-the-counter bulletin board (OTCBB) began in June 1990, on a pilot basis. Approved for permanent operation by the SEC in April 1997, the OTCBB differs from the National Association of Securities Dealers' Automated Quotation (NASDAQ) system in that: (1) quantitative, minimum listing requirements are not imposed, (2) automated trade executions are not provided for, and (3) pre-January 5, 1999, issuers of securities are not required to file periodic financial information with the SEC.

⁶ The time of this news release was 12:43 p.m. Eastern Standard Time (EST).

⁷ A detailed, very professional schedule, based on 58,250,206 shares outstanding and a 1/3rd attorney/collection fee estimate was published by Tom Bibiyan at 4:56 (p.m. or a.m. not specified) on August 6, 2001. This schedule suggested that the PPS value of this judgment, before tax, would approximate \$4.47. The schedule was developed in 5 percent (of the \$389 million) increments and posted at <http://www.internetplays.com/dispatch.php?id=1168>. This site is no longer active or available.

Why did Universal continue to issue large amounts of shares? These additional issues of common stock only contributed to the dilution of the judgment on a per share basis. This dilution appeared to be irrational and was a topic of discussion on the USXP Raging Bull (RB) stock chat message board (Cataldo 2003, 124-126).

Generally, these additional issues of Universal common stock could be expected to produce a negative PPS reaction. This result is due to the potential for management or other insiders to exploit inside information by selling overvalued securities. Research suggests that investors recognize their vulnerability and respond by reducing the firm's value (Smith 1993).

Those shareholders concerned about the dilution of the judgment took the intuitively appealing position that issues of additional Universal shares made sense only if the judgment amounts were *not* collectible. This position, however, was inconsistent with the content of Universal's news releases which suggested that collection efforts were progressing. At a minimum, uncertainty surrounded the net realizable value of the judgment. Jarrow (1992, 332) examined the linkage between information asymmetry and market manipulation:

Asymmetries create manipulation opportunities, which otherwise would not exist.

Neglected/Generic Stocks, Uncertainty and the Stock Chat Message Boards

Universal was (and remains) a neglected or generic stock (Arbel 1985; Arbel, Carvell and Strebel 1983; Arbel and Strebel 1983 and 1982). Neglected or generic stocks are typically micro- or small-cap stocks. These firms are followed by few analysts, if at all. Therefore, analyst-based consensus point, range or upper-/lower-bound estimates that are common for mid- or big-cap stocks is less prevalent for micro-/small-cap stocks.

Williams (1998) examined analyst and management forecasts, developing a hierarchy of forecast precision. Classification of the forecast hierarchy comprised (1) point estimates (the most precise), (2) range estimates (less precise than point, but more precise than upper- or lower-bound), and (3) lower- or upper-bound (the least precise of the three).

In the case of the Universal judgment announcements and other news releases, individual shareholders opined on the amount likely to be realized from the \$389 million and subsequent judgments. They also commented on the results from acquisitions, funding commitments, and even the credibility of the news releases and public relations announcement, which became the subject of the SEC LR (Cataldo 2003).

This absence of information or analyst coverage precludes the inclusion of a price premium for an equity security (i.e., financial product). The monitoring deficiency for generic stocks results in the absence of a price premium or the maintenance of a PPS discount, just as is the case with generic products. The analogy between tangible or non-financial and financial products is provided in equations (a) and (b), respectively:

$$\text{Tangible Product}_{\text{Generic}} + \text{Branding/Advertising}_{\text{Premium}} = \text{Tangible Product}_{\text{Non-Generic}} \quad (\text{a})$$

$$\text{Financial Product}_{\text{Generic}} + \text{Analyst Coverage}_{\text{Premium}} = \text{Financial Product}_{\text{Non-Generic}} \quad (\text{b})$$

The cost of obtaining information for a small- or micro-cap firm, if neglected by analysts, is high. Arbel (1985, 8) explains:

... from the investor's point of view, the lower the level of consensus among analysts, the larger is the information deficiency ...

Antweiler and Frank (2004) examined the effects of 1.5 million messages posted on both Yahoo! Finance and RB stock chat message boards. Their study of large or big-cap firms, focused on 45 companies in the Dow Jones Industrial Average and the Dow Jones Internet Index. This study was based on cases where analyst coverage is persistent and consensus is determinable (see equation b, above). They concluded that stock chat message board volume represented a significant predictor for volatility, consistent with earlier findings by Harris and Raviv (1993). These findings and conclusions also were consistent with those reached by Cataldo (2003)⁸ – stock chat message board disagreements generate increased trading volume.

Antweiler and Frank concluded that "... Internet stock messages may be helpful in studies of insider trading and event studies." The Universal case represents such a case, but is more appropriately characterized by that of a generic stock or financial product (Arbel 1985), where a lack of analyst coverage contributes to information asymmetry and market inefficiency may persist, without the timely intervention of regulators.

⁸ Cataldo (2003) provided some descriptive statistics, including a Pearson product moment correlation (r) between the trading day percentage change (4p.m.-to-4p.m. close) in RB stock chat message board posts and the percentage change in trading day percentage change in volume of Universal shares traded. The correlation was very high, at 0.962 (N=44) (Table 8.3, 125-126), and was the result of disagreements of the details surrounding the public news release of a \$389 million judgment in Universal's favor (e.g., likelihood of collection, attorney's and collection fees, net value on a per share basis). A comparable test, but replacing the volume measure with one based on closing PPS was also significant, but the volume explained only 22.3 percent of the increase in PPS.

MODEL DEVELOPMENT

This article makes extensive use of dummy⁹ (independent) variables to statistically examine the significance/insignificance of SEC LR-based event dates/time periods on the daily trading volume (the dependent variable) of Universal shares. The use of dummy variables provides for a qualitative measurement without imposing any unrealistic measurement assumptions (Hardy 1993). In all cases, the dummy variable is set to 1 for the news-based event date of interest and 0 otherwise.

Data

Universal stock price and volume measures were developed from publicly available, Internet-based sources. News releases and news release event dates were identified from archives on Universal's website (N=181), over a period ranging from January 3, 2000, through March 26, 2004 (N=1,063 trading days).

Judgment Announcements – Headlines Including Dollar Amounts

A review of the Universal website news release archives resulted in 13 headlines relating to judgments and judgment collection efforts. Most related to the initial judgment of \$389 million (n=11; \$389M), one provided an update – additional interest in the amount of \$137 million (n=1; \$137M), and the most recent provided an update on the combined amounts of \$526 million (n=1; \$526M¹⁰), for a total of thirteen observations (N=13).

The SEC LR referred to Universal's public news releases and stock trading volume, but did not specifically address information relating to the judgment awarded to Universal (SEC 2004). Preliminary statistical tests were conducted using daily trading volume (Vol) and two transforms: the natural logarithm of volume (LnVol), to mitigate the effect of any time trend variable, and the daily close-to-close percentage change in volume (VolPctChg). Each of these dependent variables (DVs) was applied separately using independent variables (IVs) for each of the three classes of news releases (e.g., \$389M, \$137M, and \$526M), as well as a test of the combined total of thirteen observations (AllM).

Finally, for all twelve variations (i.e., three DVs by four IVs), four days prior to the news release (T=-4, T=-3, T=-2 and T=-1), the date of the news release (T=0), and one day following the news release (T=+1), were examined. The generic model for all twelve, exploratory regressions is represented by equation (1), as follows:

⁹ Dummy variables are also known as categorical, dichotomous or binary variables.

¹⁰ The original judgment of \$389 million plus \$137 million in interest equals \$526 million.

$$DV_i = \alpha_i + \beta_1 IV_{-4_i} + \beta_2 IV_{-3_{2i}} + \beta_3 IV_{-2_{3i}} + \beta_4 IV_{-1_{4i}} + \beta_5 IV_{=0_{5i}} + \beta_6 IV_{+1_{6i}} + \varepsilon_i \quad (1)$$

The results for all twelve exploratory regressions are summarized in Table 1a. First, none of the event dates preceding news releases by 4 (T=-4) or 3 (T=-3) trading days were statistically significant (at the 0.10 level). Second, the VolPctChg DV produced statistically significant (at the 0.10 level) results only for the actual date of the news release (T= 0) and only for the \$389M and the AIIM IVs. These IVs were also significant for regression models based on the Vol and LnVol DVs. Third, there is some evidence of statistical significance for the \$526M IV, but only for two of the three DVs (i.e., Vol and LnVol).

The same pattern of exploratory regressions were developed replacing PPS counterparts for the volume DVs, where closing price (Pri), the natural logarithm of price (LnPri), again, to mitigate the effect of any time trend variable, and the daily close-to-close percentage change in PPS (PriPctChg) replaced Vol, LnVol, and VolPctChg DVs, respectively. These results are provided in Table 1b, but there is less clarity with respect to statistical significance.

Table 1a
 Volume as Dependent Variable (DV)
 Preliminary Statistical Tests of 3 DVs and 4 Independent Variables (IVs):
 Event Dates Surrounding Universal Headlines (T=0) Including Judgment Amounts

IV	T=-4	T=-3	T=-2	T=-1	T=0	T=+1
Vol as DV:						
\$389M	1.01	0.90	1.33	1.08	2.97 **	1.32
\$137M	0.45	0.34	1.05	1.06	9.36 **	2.60 **
\$526M	0.12	0.32	2.31 *	1.35	0.81	0.05
AIIM	0.51	0.78	1.81 *	1.54	5.56 ***	1.87 *
LnVol as DV:						
\$389M	0.90	0.99	1.60	1.72 *	3.23 **	2.07 *
\$137M	1.15	1.07	1.45	1.45	2.50 *	1.85 *
\$526M	0.90	1.08	1.81 *	1.57	1.36	0.81
AIIM	1.20	1.37	2.26 *	2.32 *	3.93 ***	2.49 *
VolPctChg as DV:						
\$389M	1.14	-0.55	1.30	-0.38	1.97 *	-1.06
\$137M	-0.23	-0.22	0.07	-0.18	1.32	-0.37
\$526M	0.10	-0.08	1.55	-0.28	-0.27	-0.35
AIIM	1.04	-0.57	1.43	-0.47	2.18 *	-1.14

* Significant at the 10 percent (0.10) level.
 ** Significant at the 1 percent (0.01) level.
 *** Significant at the 0.1 percent (0.001) level.

Table 1b
 Price per Share as Dependent Variable (DV)
 Preliminary Statistical Tests of 3 DVs and 4 Independent Variables (IVs):
 Event Dates Surrounding Universal Headlines (T=0) Including Judgment Amounts

<u>IV</u>	<u>T=-4</u>	<u>T=-3</u>	<u>T=-2</u>	<u>T=-1</u>	<u>T=0</u>	<u>T=+1</u>
Pri as DV:						
\$389M	-0.22	-0.30	-0.12	-0.22	0.20	0.15
\$137M	-0.63	-0.63	-0.62	-0.63	-0.52	-0.57
\$526M	-0.48	-0.52	-0.47	-0.52	-0.52	-0.52
AIIM	-0.37	-0.48	-0.29	-0.40	0.01	-0.04
LnPri as DV:						
\$389M	-0.27	-0.36	0.18	0.02	0.83	0.78
\$137M	-1.19	-1.18	-1.11	-1.16	-0.56	-0.81
\$526M	-0.42	-0.55	-0.38	-0.54	-0.57	-0.55
AIIM	-0.48	-0.61	-0.06	-0.27	0.63	0.55
PriPctChg as DV:						
\$389M	2.16 *	-0.62	1.18	-0.55	1.75	-0.60 *
\$137M	-0.35	-0.05	0.08	-0.16	1.57	-0.48
\$526M	-0.13	-0.30	0.30	-0.34	-0.12	-0.03
AIIM	1.85 *	-0.64	1.28	-0.63	2.16 *	-0.63

Again, however, a narrowed focus on the actual event date (T=0) of the news release produces the strongest results for all three series of stock PPS-based dependent variables (see Table 1b).

Statistical analyses for the remainder of this article focus on the application of volume measures as the dependent variable. This volume-based design is consistent with the focus of the SEC LR (SEC 2004). Further analyses are restricted to the actual news release event date (T=0), as the exploratory results provided in Tables 1a and 1b suggest this narrow focus. Finally, the preliminary statistical results contained in Table 1b suggest that the PPS for Universal stock may not have been permitted to rise unhampered. These results, though not conclusive in and of themselves, are consistent with the allegations contained in the SEC LR and are not inconsistent with what Wall Street characterizes as a “pump and dump.”

The Organizational Structure of Universal Express

Universal, at the time of the SEC action, had 8 divisions. A brief description of these divisions, from the Universal website, follows:

- WorldPost Network (WPN), a provider of private postal products;
- Universal Express Capital (CAP), a provider of financing for Universal transportation and equipment;
- Universal Cash Express (CE), a provider of stored value/debit cards;
- Sub-Contracting Concepts (SC), a provider of third party contracting services for independent courier companies;
- Luggage Express (LE), a provider of domestic and international luggage delivery;
- Virtual Bellhop (VB), a provider of door-to-door luggage delivery;
- Bags To Go (BTG), a provider of luggage transportation; and
- WorldPost International Delivery (WPI), an international provider of luggage delivery services.

News releases identified as specific to each of the 8 Universal divisions totaled forty-six (n=46).¹¹ Two had common event dates. Therefore, in aggregate, there were forty-four (N=44) date-specific event dates for division-related news releases.

The SEC focused on the *volume* of shares sold into news-based rallies (SEC 2004). Therefore, equation (2) established the volume of shares trading on each trading day (Vol) as the dependent variable. Independent variables were used to measure the variance associated with these divisional news releases (WPN, CAP, CE, SC, LE, VB, BTG, and WPI) (N=46). An aggregate dummy variable (AllDns) associated with all division-specific news releases was also used (N=44). The basic model is represented by equation (2), as follows:

$$\text{Vol}_i = \alpha_i + \beta_1 \text{WPN}_{1i} + \beta_2 \text{CAP}_{2i} + \beta_3 \text{CE}_{3i} + \beta_4 \text{SC}_{4i} + \beta_5 \text{LE}_{5i} + \beta_6 \text{VB}_{6i} + \beta_7 \text{BTG}_{7i} + \beta_8 \text{WPI}_{8i} + \beta_9 \text{AllDns}_{9i} + \varepsilon_i \quad (2)$$

The signs of coefficients (correlation) for each of the separate divisional news releases were expected to be positive. No predictions were made for the intercept, the aggregate divisional news release variable (AllDns) or the error term.

Equation (2') retained the basic model from equation (2), adding an independent variable for Universal's close-to-close percentage change in PPS (PriPctChg), as follows:

$$\text{Vol}_i = \alpha_i + \beta_1 \text{WPN}_{1i} + \beta_2 \text{CAP}_{2i} + \beta_3 \text{CE}_{3i} + \beta_4 \text{SC}_{4i} + \beta_5 \text{LE}_{5i} + \beta_6 \text{VB}_{6i} + \beta_7 \text{BTG}_{7i} + \beta_8 \text{WPI}_{8i} + \beta_9 \text{AllDns}_{9i} + \beta_{10} \text{PriPctChg}_{10i} + \varepsilon_i \quad (2')$$

¹¹ As follows: WPN (n=7), CAP (n=4), CE (n=1), SC (n=1), LE (n=11), VB (n=10), BTG (n=2), and WPI (n=10).

Table 2
Sign of Coefficient for 8 Separate and Aggregate Divisional News Releases
and Universal Stock Price per Share Percentage Change (PriPctChg)

<u>Equation</u>	<u>(1)</u> <u>WPN</u>	<u>(2)</u> <u>CAP</u>	<u>(3)</u> <u>CE</u>	<u>(4)</u> <u>SC</u>	<u>(5)</u> <u>LE</u>	<u>(6)</u> <u>VB</u>	<u>(7)</u> <u>BTG</u>	<u>(8)</u> <u>WPI</u>	<u>(1) thru (8)</u> <u>AllDns</u>	<u>PriPctChg</u>
(2)	+	+	+	+	*	+	+	+	-	
(2')	+	+	+	+	*	+	+	+	-	+ **

The results from equations (2) and (2') are provided in Table 2. As predicted, the coefficients for the separate divisional news release dummy variables were positive for both equations. However, only the Subcontracting Concepts (SC) variable was significant (at the 0.10 level) for both models. The close-to-close percentage change in Universal's stock price (PriPctChg) was also positive and significant for equation (2'), generating an overall F-statistic of 2.0 (p-value = 0.03).

The SC independent variable results were generated from a single observation (n=1). The December 1, 2003, news release announced the purchase of SC included anticipated revenues of \$168 million in the headline.¹² An examination of the December 31, 2003, Form 10-QSB, filed with the SEC, shows that SC contributed nearly \$14 million (i.e., \$168 million divided by 12 months) in revenues. This acquisition contributed 91 percent of Universal consolidated revenues for the year. Therefore the significance of the anticipated impact on Universal revenues was reflected in the trading volume for the event date of the news release.

SEC REPORTED TIME PERIODS AND EVENT DATES

The SEC LR associates the sale of additional Universal shares and news releases with both broad time periods and specific event dates (SEC 2004). This section examines both, using volume-based regression models to investigate the statistical significance of these periods and event dates and comparing statistical results to statements made in the SEC LR.

Broad Time Periods Described by the SEC

The following excerpts are from the Securities and Exchange Commission (SEC 2004) litigation release:

¹² This news release stated that Sub-Contracting Concepts anticipated \$168 million in gross revenue and \$650 thousand in net income for 2003.

“...Universal issued a series of false press releases from May 2002 to April 2003 announcing funding commitments for a total of \$885 million...”

“From April 2001 through November 2003...(Universal issued)...270 million shares...(name withheld) or affiliates paid a total of \$5 million for the stock...”

The above represents a 32 month period (or 668 trading days), and the issuance of approximately 8.4 million shares per month at approximately \$0.0185 per share (or \$156 thousand in gross proceeds per month).

“From August 2001 to December 2003...(Universal issued)...157 million...shares...(name withheld) or affiliates paid at least \$2.5 million.”

The above represents a 29 month period (or 606 trading days), and the issuance of approximately 5.4 million shares per month at approximately \$0.0159 per share (or \$86 thousand in gross proceeds per month).

“...from August 2002 to February 2004...(Universal issued)...80 million...shares...(name withheld) or his affiliates paid at least \$1.6 million.”

The above represents a 19 month period (or 397 trading days), and the issuance of approximately 4.2 million shares per month at approximately \$0.02 per share (or \$84 thousand in gross proceeds per month).

Table 3a
 Universal Shares of Class “A” Common Stock Authorized & Outstanding and
 Additional Issues Noted in the SEC Litigation Release

<u>Date</u>	<u>Authorized (millions)</u>	<u>Issued (millions)</u>	<u>270.0M Apr01Nov03</u>	<u>157.0M Aug01Dec03</u>	<u>80.0M Aug02Feb04</u>
12/31/1998	147.0	3.3			
3/31/1999	147.0	4.5			
6/30/1999	147.0	7.2			
9/30/1999	147.0	10.1			
12/31/1999	147.0	11.9			
3/31/2000	147.0	14.4			
6/30/2000	147.0	18.8			
9/30/2000	147.0	29.8			
12/31/2000	147.0	54.2			
3/31/2001	147.0	57.0			
6/30/2001	147.0	84.9			
9/30/2001	247.0	138.5	↓		
12/31/2001	247.0	165.8		↓	
3/31/2002	247.0	190.1			
6/30/2002	250.0	224.1			
9/30/2002	350.0	275.3			
12/31/2002	350.0	345.9			
3/31/2003	450.0	420.0			
6/30/2003	550.0	491.2	↓		
9/30/2003	650.0	552.0		↓	
12/31/2003	750.0	650.2			↓

Table 3a provides a summary of the class “A” common shares reported outstanding from the Universal forms 10QSB and 10KSB filed with the SEC. Columns are provided to illustrate the additional shares issued by Universal, as specified in the SEC LR. These shares were assumed to have been uniformly distributed during these periods.¹³

The April 2001 through November 2003 period (Apr01Nov03), August 2001 through December 2003 (Aug01Dec03), and August 2002 through February 2004 (Aug02Feb04) periods were tested using a dummy variable for trading days falling within these broad time periods specified in the SEC LR.

Equation (3) uses the natural logarithm transform of volume (LnVol) as the dependent variable for all three period-based independent (dummy) variables, as follows:

$$\text{LnVol}_i = \alpha_i + \beta_1 \text{Apr01Nov03}_{1i} + \beta_2 \text{Aug01Dec03}_{2i} + \beta_3 \text{Aug02Feb04}_{3i} + \varepsilon_i \quad (3)$$

Table 3b
Comparison of Rankings for Broad Periods: T-Statistics and SEC-Reported Measures

Independent Variable	coefficient	t-stat	p-value	T-Statistic	SEC	SEC
				Rank	Reported Shares	Percentage Rank
Apr01Nov03	0.9274	7.06	0.001	2 nd	270.0M	3 rd
Aug01Dec03	0.8872	6.32	0.001	3 rd	157.0M	2 nd
Aug02Feb04	1.50641	16.34	0.001	1 st	80.0M	1 st

The results from equation (3) are presented in Table 3b. The correlations for all three independent variables are positive, however, the relative ranking of the t-statistics are not precisely the same as those suggested by the SEC (SEC 2004). The last period, the Aug02Feb04 independent variable is clearly the strongest explanatory variable where the uniformly distributed volume estimates are the highest (see Table 3a), but the relative rankings of the other two time periods, though very close (e.g., t-statistics at 7.06 and 6.32), are reversed. The dummy variables used to identify these two broadly defined periods were, however, the most highly correlated ($r=0.799$ – see Appendix), and these results are likely the function of the uniform distribution assumption. These results might change if the information available to the SEC were incorporated for regression analysis. Finally, the adjusted R-squared is quite high, at 54.1 percent, with an overall F-statistic of 418.4 ($p=0.001$).

¹³ Assuming a uniform distribution, monthly shares (ranked, where 1 equals the highest number of shares) were issued, as follows: 8,437,500 shares (4th) for April 2001 through July 2001; 13,851,293 shares (2nd) for August 2001 through July 2002; 18,061,819 shares (1st) for August 2002 through November 2003 (3rd); 9,624,319 shares for December 2003; and 4,210,526 shares (5th) for January and February 2004.

Precise Event Dates Provided by the SEC

Three very precise event dates were specified in the SEC LR (SEC 2004), as follows:

“May 23, 2002 Announcement of \$100 million in Funding”

The SEC LR alleges that parties directly or indirectly related to those presumed to be responsible for this funding commitment, in aggregate, sold 5 million shares of Universal stock on May 23 and 24. May 23 trading volume, according to the SEC, represented “...an 800% increase over the previous day.”

“July 10, 2002 Announcement of \$460 million Letter of Intent”

The SEC LR alleges that one related-party sold 1.5 million shares of Universal stock on July 10. The letter of intent was from a loan broker with no funds to invest and based on false information provided by Universal. Trading volume, according to the SEC, “...increased more than 700% over the prior trading day.”

“November 21, 2002 Announcement of \$25 Million in Additional Funding”

The SEC LR alleges that several related-parties, in aggregate, sold nearly 4.9 million shares of Universal stock on November 21. Trading volume, according to the SEC, “...increased 280% over the previous day.”

“April 9, 2003 Announcement of \$300 Million in Funding”

The SEC LR alleges that several related parties, in aggregate, sold more than 18 million share of Universal stock on April 9. Trading volume, according to the SEC, was “...47 times the volume of the previous day.”

In all four cases, the SEC overtly stated the percentage increase in volume. Equation (4) was used to generate a preliminary statistical test of the 1,063 observations (January 3, 2000 through March 26, 2004 trading days) for these four event dates (May2302, Jul1002, Nov2102, and Apr0903). The dependent variable was the daily percentage change in trading volume (VolPctChg), as follows:

$$\text{VolPctChg}_i = \alpha_i + \beta_1 \text{May2302}_{1i} + \beta_2 \text{Jul1002}_{2i} + \beta_3 \text{Nov2102}_{3i} + \beta_4 \text{Apr0903}_{4i} + \varepsilon_i \quad (4)$$

The results from equation (4) are contained in Table 4, where rankings of the t-statistics and SEC reported percentage increases in trading volume are perfectly matched. The adjusted R-squared is, again, quite high, at 34.0 percent, with an overall F-statistic of 137.98

Table 4
Comparison of Rankings for Specific Event Dates:T-Statistics and SEC-Reported Measures

<u>Independent Variable</u>	<u>coefficient</u>	<u>t-stat</u>	<u>p-value</u>	<u>T-Statistic Rank</u>	<u>SEC Reported</u>	<u>SEC Percentage Rank</u>
May2302	8.156	2.60	0.009	2 nd	800%	2 nd
Jul1002	7.438	2.37	0.018	3 rd	700%	3 rd
Nov2102	2.789	0.89	0.374	4 th	280%	4 th
Apr0903	72.156	23.02	0.000	1 st	4,600%	1 st

(p=0.000). These four (of 1,063 possible) events dates explain 34 percent of the variation in daily trading volume as measured by the daily change in trading volume.

SHORT AND NAKED SHORT SALES

Universal claimed that “naked short selling” had artificially depressed the price of the firm’s stock. In the first of a series of three news releases on this topic, the September 23, 2003, headline read:

Universal Express (USXP) Declares War on “Naked Short Selling”

A second and third announcement, on the topic of naked shorting, was made by the firm on September 26, 2003 and, again, on October 1, 2003. The SEC LR specifically addressed Universal’s claims that naked short selling was causally linked to the decline in the firm’s stock price. The SEC found no evidence of significant “fails to deliver” for Universal stock (SEC 2004).

In their extension of the work of Asquith and Meulbroek (1995) from the NYSE/AMEX to the NASDAQ, Desai, Ramesh, Thiagarajan and Balachandran (2002) operationally defined a stock as “heavily shorted” at 2.5%. Therefore, naked shorting allegations made by Universal may have had a negative impact on Universal’s stock PPS.

A short sale transaction involves the sale of long shares of stock that are borrowed. An affirmative determination must precede a short sale. The affirmative or positive determination rule requires that the investor make sure that long positions are available to borrow against, and is required under U.S. securities laws.

A “naked” short sale occurs when an affirmative determination has not taken place. The investor does not know that the long shares can be borrowed. These short positions are not

declared and these shares are not delivered to the buyer. Naked short selling artificially inflates ownership and devalues the price of the equity security.

National Association of Securities Dealers (NASD) Rule 3350, also known as “the short rule,” prohibits short sales on a down bid, “bear raiding,” and “piling on.” However, NASD Rule 3370(b)(2)(B) provided an exception for primary market makers. An affirmative or positive determination were not required if the long positions for these securities were available to borrow by the settlement date.

Furthermore, a holder of convertible debentures may short securities covered by the convertibles. Recent research findings suggest that floating-priced convertibles, also known as “death spirals,” are followed by significant negative abnormal returns (Hillion and Vermaelen 2004).

Testing Effects of Naked Shorting Claims and the SEC Litigation Release

This section examines event dates associated with (1) Universal news releases - claims that the firm’s low stock price was a function of naked shorting (NS) and (2) news of the SEC LR. Many of the IVs contained in earlier models were used as control variables and are noted below.

Equation (2) examined the impact of divisional news releases on daily trading volume. All were positively correlated with trading volume (see Table 2), but on the Subcontracting Concepts news release was significant, and for both equations (2) and (2’). The percentage change in daily PPS was also included and was also significant (at the 0.01 percent level). It was selected for inclusion in the final model, discussed later in this section.

Equation (3) examined the impact of some broadly defined time periods, defined by the SEC in their litigation release, on the natural logarithm of trading volume. All three time periods were significant (at the 0.001 level). Equation (4) examined the impact of four specific event dates, also defined by the SEC in their litigation release, on the daily percentage change in trading volume. These four event dates explained 34 percent of daily trading volume changes.

All of the above previously examined independent variables will be included in a final regression model, using the natural logarithm of daily trading volume as the dependent variable. All signs are predicted to remain consistent with the results in earlier models. In addition to the above, interactions for three additional independent variables were examined.

The \$389 million dollar jury award to Universal on July 26, 2001, provided the credibility necessary to facilitate the firm's ability to issue additional shares of Universal stock at a relatively high PPS. A variable representing the percentage change in daily PPS for each of these event dates (n=11) was added to the model (\$389MxPriPctChg). This variable is predicted to be positively correlated to the dependent variable and remain significant.

Universal claimed that the firm's PPS declined was due to naked shorting. A variable representing the percentage change in daily PPS for each of the news release event dates claiming manipulations by naked short sellers of Universal stock (n=3) were added to the model (NSxPriPctChg).

This variable is not expected to be significant and the direction is not predicted. However, if the objective is to calm investor/speculator fears and to entice those interested in participating in a profitable short squeeze, a successful effort should result in a negative correlation to volume or volume-related transforms, *ceteris paribus*.

Finally, the SEC LR represented *bad* news and was a significant event. There were three news releases on the last three days contained in the sample period (N=1,063). Again, an independent variable capturing the interaction of these event dates (n=3) and the percentage change in daily PPS for each will be added to the model (SECxPriPctChg). The prediction for this variable, therefore, is that its correlation to the dependent variable will be negative and significant.

Equation (5) represents the final regression model where the correlation to the natural log of daily trading volume for ten of the independent variables are predicted to be positive, one negative (SECxPriPctChg), and one unknown (NSxPriPctChg):

$$\begin{aligned} \text{LnVol}_i = & \alpha_i + \beta_1 \text{SC}_{1i} + \beta_2 \text{Apr01Nov03}_{2i} + \beta_3 \text{Aug01Dec03}_{3i} + \beta_4 \text{Aug02Feb04}_{4i} + \beta_5 \text{May2302}_{5i} \\ & + \beta_6 \text{Jul1002}_{6i} + \beta_7 \text{Nov2102}_{7i} + \beta_8 \text{Apr0903}_{8i} + \beta_9 \text{\$389MxPriPctChg}_{9i} + \beta_{10} \text{NSxPriPctChg}_{10i} \\ & + \beta_{11} \text{SECxPriPctChg}_{11i} + \varepsilon_i \end{aligned} \quad (5)$$

Table 5 contains the results of equation (5). The adjusted R-squared is 57.2 percent with an overall F-Statistic of 129.9 (p-value = 0.000). All results were as predicted and/or the signs of the coefficients consistent with prior equations.

The SC variable (from equations (2) and (2'), see Table 2), and representing a single news release event (n=1), was positively correlated with volume and significant (at the 0.10 level).

Table 5
Naked Shorting Claims by Universal and the SEC Litigation Release

<u>Equation Reference</u>	<u>Independent Variable</u>	<u>coefficient</u>	<u>t-stat</u>	<u>p-value</u>	<u>Predicted Sign</u>
(2)	SC	2.115	1.76	0.078	+
(3)	Apr01Nov03	0.894	6.96	0.000	+
(3)	Aug01Dec03	0.934	6.81	0.000	+
(3)	Aug02Feb04	1.514	16.95	0.000	+
(4)	M2302	2.787	2.33	0.020	+
(4)	J1002	1.888	1.58	0.114	+
(4)	N2102	0.984	0.82	0.410	+
(4)	A0903	3.143	2.63	0.009	+
adjusted (2') & (1)	\$389M x PriPctChg	1.657	5.17	0.000	+
adjusted (2')	NS x PriPctChg	1.340	0.07	0.942	none
adjusted (2')	SEC x PriPctChg	-19.945	-6.23	0.000	-

All three variables (from equation (3), see Table 3b)) developed from the broad-based periods contained in the SEC LR were positively correlated and significant (at the 0.001 level), with no change in SEC-based ranking. The four variables (from equation (4), see Table 4), also developed from the SEC LR, but based on very specific event dates (n=4), were all positive. Though there was some loss of statistical significance in this broader regression equation's results, the SEC-based rankings are, again, retained.

Predictions were made for two of the following three interactions. In all three cases, the interaction included the PriPctChg variable defined and used for equation (2'). They are described below.

The first interaction term ($\$389M \times PriPctChg$) was developed from equation (1) (see Table 1a). It captures the effect of the news releases related to the initial judgment amount (n=11). The sign is positive and significant (at the 0.001 level), as predicted.

The second interaction term ($NS \times PriPctChg$) is a new variable. It is positive (no prediction made), but not significant (as predicted). Though the sample size is small (n=3), Universal claims of naked shorting appeared to have little effect, *ceteris paribus*, with respect to the generation of additional variance on trading volume or PPS. No conclusions may be drawn from this independent variable, a topic for proposed, further study.

The third and last interaction term ($SEC \times PriPctChg$) represented the news of the SEC LR. This was and remains *bad* news for Universal and their shareholders. Therefore, the negative correlation between stock price and the volume transform were as predicted and significant (at the 0.001 level), for this small sample (n=3) of observations occurring at the end of the sample (N=1,063) under examination.

LIMITATIONS

The event dates examined in this article (N=181) do not include those from external, potentially related or compensated sources. Some of these sources may be provided with free trading shares in exchange for news services. Possible sources include, but are not limited to: (1) The Subway, (2) Emerging Companies - The Money TV Network, (3) Trading Nation and Trader's Nation Radio, (4) The KonLin Letter, (5) Wall Street News Alert, (6) Stock Patrol, or others.¹⁴

CONCLUSIONS AND RECOMMENDATIONS

This article investigates and forensically examines a single firm, Universal Express, Inc. (OTCBB: USXP). A March 24, 2004 Securities and Exchange Commission litigation release charged that Universal made "false or misleading statements" with respect to funding commitments and sold shares through a "fraudulent stock distribution scheme." The SEC allegations suggest a fact pattern consistent with what Wall Street refers to as a "pump and dump," where insiders sell into public releases of good news or information. In this case, the SEC alleges that Universal's news releases contained significant elements of hidden or private information, resulting in a condition referred to as information asymmetry.

The Universal website archived 181 news releases between January 2, 2003, and March 26, 2004. Over this period there were 1,063 trading days, for an average of one Universal-issued news release for every 5 to 6 trading days. The greatest interest, as suggested by posts on the RB stock chat message boards, arose from Universal's announcement of a favorable judgment in the amount of \$389 million (Cataldo 2003).

The SEC focused on Universal shares and trading volume, however, this article began with a forensic investigation of both volume and PPS. Correlations between both of these dependent variables (and transform variations) were examined for correlation with the initial and subsequent headlined judgment announcements. Consistent with SEC emphasis, volume was found to be more closely associated with these corporate news releases and was selected as the dependent variable for further investigation.

¹⁴ See Subway.com, The <http://www.thesubway.com/mydefault.asp>, Money TV Network, The <http://www.emergingcompany.com/>, Trader's Nation <http://www.tradersnation.com/radio.shtml>, KonLin Letter, The <http://www.konlin.com/>, Wall Street News Alert <http://www.wallstreetnewsalert.com/>, and Stock Patrol <http://www.stockpatrol.com/>, respectively. Some of these sources may accept shares of a firm's stock as compensation, in exchange for coverage or access to their subscribers.

Next, another series of Universal news releases, also not noted in the SEC LR, were investigated. All represented positive or *good* news and all were positively correlated with Universal share volume, but only one news release was statistically significant. This news release contained a significant dollar amount in the headline, related to an acquisition, and the acquired firm contributed revenues approximating 91 percent of Universal's consolidated revenues for the 2003 calendar and fiscal year.

Broad time periods and specific event dates were then investigated (SEC 2004). Statistically, volume-based model results were consistent with the SEC allegations.

Finally, the impact of Universal's public complaints of shorting and naked shorting and the SEC LR were investigated. Independent variables found to be statistically significant in prior models were included to control for other identified events.

Universal's announcements and complaints of naked shorting did not have a significant effect on the trading volume of Universal shares. Claims of naked shorting represent an anti-shortening strategy. Firms making such allegations are often the subject of subsequent, below market returns (Lamont 2003). The impact of the public release of the SEC LR was also investigated, found to be significant, and resulted in a reduction in the firm's PPS.

Academic researchers interested in information theory, information asymmetry, and hidden or private information and their relation to agency theory and market efficiency may wish to investigate other firms making claims of naked shorting to explain a declining PPS. This case study used the SEC LR and the case of Universal to provide a methodological approach, useful to regulators and forensic accountants engaged to investigate similar matters. A broader study including a larger sample of firms alleging this form of stock price manipulation would provide additional insights into the credibility of such claims and the need for additional regulation.

Christophe, Ferri and Angel (2004) encouraged financial market regulators to consider providing more extensive and timely disclosures of short-selling to investors. Recall that the SEC LR found no evidence of naked shorting of the shares of Universal stock, despite the firm's claims (SEC 2004). Instead, the SEC LR focused on Universal's own sales of shares into rallies that Universal was alleged to have created with false news releases of an ever-growing number of external funding commitments. The SEC LR alleges that Universal used insider information and the contemporary controversies with respect to shorting and naked shorting, recently addressed by the NASD and the SEC in their affirmative determination

requirements and proposed Regulation SHO, respectively, to profit from hidden or private information and the generation and maintenance of a condition of information asymmetry.

From a regulatory perspective, the solution is greater visibility. One solution to the problems alleged by the SEC and evident in the Universal case is to require all firms to post the number of shares issued and outstanding at the base of each and every news release. Generally, these firms instruct their transfer agent, in writing, when, how and how many shares to issue, therefore, they must necessarily have this information readily available. Furthermore, it is common for firms to provide disclaimer information with respect to “forward looking” statements at the bottom of their news releases. This additional requirement would not be onerous. Each investor or speculator could then determine sequential levels of dilution directly associated with positive news releases that might otherwise be designed to facilitate a “pump and dump.”

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APPENDIX

Table 1a: Equation (1) with Volume as Dependent Variable

	<u>Vol</u>	<u>LnVol</u>	<u>VolPct</u>	<u>389Mn4</u>	<u>389Mn3</u>	<u>389Mn2</u>	<u>389Mn1</u>	<u>389M0</u>	<u>389Mp1</u>	<u>137Mn4</u>
Vol	1.00									
LnVol	0.54	1.00								
VolPct	0.30	0.11	1.00							
389Mn4	0.08	0.09	0.06	1.00						
389Mn3	0.06	0.08	-0.02	0.08	1.00					
389Mn2	0.09	.010	0.06	0.27	0.08	1.00				
389Mn1	0.07	0.10	-0.02	0.08	0.27	0.08	1.00			
389M0	0.13	0.14	0.08	0.27	0.08	0.27	0.08	1.00		
389Mp1	0.08	0.11	-0.03	0.17	0.27	0.08	0.27	0.08	1.00	
137Mn4	0.01	0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00
137Mn3	0.01	0.03	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mn2	0.03	0.04	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mn1	0.03	0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137M0	0.28	0.08	0.04	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mp1	0.08	0.06	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn	0.00	0.03	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn3	0.01	0.03	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn2	0.07	0.06	0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn1	0.04	0.05	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526M0	0.03	0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mp1	0.00	0.03	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
AllMn4	0.08	0.10	0.05	0.92	0.07	0.24	0.07	0.24	0.16	0.28
AllMn3	0.06	0.09	-0.02	0.07	0.92	0.07	0.24	0.07	0.24	-0.00
AllMn2	0.11	0.12	0.06	0.24	0.07	0.92	0.07	0.24	0.07	-0.00
AllMn1	0.08	0.12	-0.02	0.07	0.24	0.07	0.92	0.07	0.24	-0.00
AllM0	0.20	0.16	0.08	0.24	0.07	0.24	0.07	0.92	0.07	-0.00
AllMp1	0.09	0.12	-0.03	0.16	0.24	0.07	0.24	0.07	0.92	-0.00
	<u>137Mn3</u>	<u>137Mn2</u>	<u>137Mn1</u>	<u>137M0</u>	<u>137Mp1</u>	<u>526Mn4</u>	<u>526Mn3</u>	<u>526Mn2</u>	<u>526Mn1</u>	
137Mn3	1.00									
137Mn2	-0.00	1.00								
137Mn1	-0.00	-0.00	1.00							
137M0	-0.00	-0.00	-0.00	1.00						
137Mp1	-0.00	-0.00	-0.00	-0.00	1.00					
526Mn	-0.00	-0.00	-0.00	-0.00	-0.00	1.00				
526Mn3	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00			
526Mn2	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00		
526Mn1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00	
526M0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mp1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
AllMn4	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00
AllMn3	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00
AllMn2	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00
AllMn1	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00
AllM0	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
AllMp1	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00
	<u>526M0</u>	<u>526Mp1</u>	<u>AllMn4</u>	<u>AllMn3</u>	<u>AllMn2</u>	<u>AllMn1</u>	<u>AllM0</u>	<u>AllMp1</u>		
526M0	1.00									
526Mp1	-0.00	1.00								
AllMn4	-0.00	-0.00	1.00							
AllMn3	-0.00	-0.00	0.07	1.00						
AllMn2	-0.00	-0.00	0.22	0.07	1.00					
AllMn1	-0.00	-0.00	0.07	0.22	0.07	1.00				
AllM0	0.28	-0.00	0.22	0.07	0.22	0.07	1.00			
AllMp1	-0.00	0.28	0.14	0.22	0.07	0.22	0.07	1.00		

Table 1a: Equation (1) with Price per Share as Dependent Variable

	<u>Pri</u>	<u>LnPri</u>	<u>PriPctChg</u>	<u>389Mn4</u>	<u>389Mn3</u>	<u>389Mn2</u>	<u>389Mn1</u>	<u>389M0</u>	<u>389Mp1</u>
Pri	1.00								
LnPri	0.84	1.00							
PriPctChg	0.08	0.09	1.00						
389Mn4	-0.01	0.00	0.09	1.00					
389Mn3	-0.01	-0.00	-0.02	0.08	1.00				
389Mn2	-0.01	0.01	0.07	0.27	0.08	1.00			
389Mn1	-0.01	0.01	-0.02	0.08	0.27	0.08	1.00		
389M0	0.01	0.03	0.08	0.27	0.08	0.27	0.08	1.00	
389Mp1	-0.00	0.02	-0.01	0.17	0.27	0.08	0.27	0.08	1.00
137Mn4	-0.02	-0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mn3	-0.02	-0.04	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mn2	-0.02	-0.03	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mn1	-0.02	-0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137M0	-0.02	-0.02	0.05	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
137Mp1	-0.02	-0.03	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn3	-0.02	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn2	-0.01	-0.01	0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mn1	-0.02	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526M0	-0.02	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mp1	-0.02	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
AllMn4	-0.02	-0.01	0.08	0.92	0.07	0.24	0.07	0.24	0.16
AllMn3	-0.02	-0.02	-0.02	0.07	0.92	0.07	0.24	0.07	0.24
AllMn2	-0.01	-0.00	0.07	0.24	0.07	0.92	0.07	0.24	0.07
AllMn1	-0.02	-0.01	-0.02	0.07	0.24	0.07	0.92	0.07	0.24
AllM0	-0.01	0.02	0.09	0.24	0.07	0.24	0.07	0.92	0.07
AllMp1	-0.01	0.01	-0.01	0.16	0.24	0.07	0.24	0.07	0.92

	<u>137Mn4</u>	<u>137Mn3</u>	<u>137Mn2</u>	<u>137Mn1</u>	<u>137M0</u>	<u>137Mp1</u>	<u>526Mn4</u>	<u>526Mn3</u>	<u>526Mn2</u>
137Mn4	1.00								
137Mn3	-0.00	1.00							
137Mn2	-0.00	-0.00	1.00						
137Mn1	-0.00	-0.00	-0.00	1.00					
137M0	-0.00	-0.00	-0.00	-0.00	1.00				
137Mp1	-0.00	-0.00	-0.00	-0.00	-0.00	1.00			
526Mn	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00		
526Mn3	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00	
526Mn2	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00
526Mn1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526M0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
526Mp1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
AllMn4	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00
AllMn3	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00
AllMn2	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00	0.28
AllMn1	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00	-0.00
AllM0	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00	-0.00
AllMp1	-0.00	-0.00	-0.00	-0.00	-0.00	0.28	-0.00	-0.00	-0.00

	<u>526Mn1</u>	<u>526M0</u>	<u>526Mp1</u>	<u>AllMn4</u>	<u>AllMn3</u>	<u>AllMn2</u>	<u>AllMn1</u>	<u>AllM0</u>	<u>AllMp1</u>
526Mn1	1.00								
526M0	-0.00	1.00							
526Mp1	-0.00	-0.00	1.00						
AllMn4	-0.00	-0.00	-0.00	1.00					
AllMn3	-0.00	-0.00	-0.00	0.07	1.00				
AllMn2	-0.00	-0.00	-0.00	0.22	0.07	1.00			
AllMn1	0.28	-0.00	-0.00	0.07	0.22	0.07	1.00		
AllM0	-0.00	0.28	-0.00	0.22	0.07	0.22	0.07	1.00	
AllMp1	-0.00	-0.00	0.28	0.14	0.22	0.07	0.22	0.07	1.00

Table 2: Equations (2) and (2')

	<u>Vol</u>	<u>WPN</u>	<u>CAP</u>	<u>CE</u>	<u>SC</u>	<u>LE</u>	<u>VB</u>	<u>BTG</u>	<u>WPI</u>	<u>AllDn</u>	<u>PriPctChg</u>
Vol	1.00										
WPN	0.03	1.00									
CAP	-0.01	-0.01	1.00								
CE	0.03	-0.00	-0.00	1.00							
SC	0.43	-0.00	-0.00	-0.00	1.00						
LE	0.01	-0.01	-0.01	-0.00	-0.00	1.00					
VB	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01	1.00				
BTG	0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	1.00			
WPI	0.00	0.11	-0.01	-0.00	-0.00	0.09	-0.01	-0.00	1.00		
AllDn	0.02	0.39	0.30	0.15	0.15	0.49	0.47	0.21	0.47	1.00	
PriPctChg	0.12	0.01	-0.00	-0.01	0.00	-0.01	-0.00	-0.00	-0.01	-0.01	1.00

Table 3b: Equation (3)

	<u>LnVol</u>	<u>Apr01Nov03</u>	<u>Aug01Dec03</u>	<u>Aug02Feb04</u>
LnVol	1.000			
Apr01Nov03	0.578	1.000		
Aug01Dec03	0.645	0.799	1.000	
Aug02Feb04	0.611	0.348	0.517	1.000

Table 4: Equation (4)

	<u>VolPctChg</u>	<u>May2302</u>	<u>Jul1002</u>	<u>Nov2102</u>	<u>Apr0903</u>
VolPctChg	1.000				
May2302	0.060	1.000			
Jul1002	0.055	-0.001	1.000		
Nov2102	0.017	-0.001	-0.001	1.000	
Apr0903	0.579	-0.001	-0.001	-0.001	1.000

Table 5: Equation (5)

	<u>LnVol</u>	<u>SC</u>	<u>Apr01Nov03</u>	<u>Aug01Dec03</u>	<u>Aug02Feb04</u>	<u>M2302</u>	<u>J1002</u>	<u>N2102</u>
LnVol	1.00							
SC	0.05	1.00						
Apr01Nov03	0.58	-0.04	1.00					
Aug01Dec03	0.65	0.03	0.80	1.00				
Aug02Feb04	0.61	0.04	0.35	0.52	1.00			
M2302	0.05	-0.00	0.02	0.03	-0.02	1.00		
J1002	0.03	-0.00	0.02	0.03	-0.02	-0.00	1.00	
N2102	0.04	-0.00	0.02	0.03	0.04	-0.00	-0.00	1.00
A0903	0.08	-0.00	0.02	0.03	0.04	-0.00	-0.00	-0.00
\$389M x PriPctChg	0.09	-0.00	0.03	-0.05	-0.03	-0.00	-0.00	-0.00
NS x PriPctChg	-0.01	0.00	-0.01	-0.01	-0.02	0.00	0.00	0.00
SEC x PriPctChg	-0.08	0.00	0.06	0.05	0.04	0.00	0.00	0.00

	<u>A0903</u>	<u>\$389M x PriPctChg</u>	<u>NS x PriPctChg</u>	<u>SEC x PriPctChg</u>
A0903	1.00			
\$389M x PriPctChg	-0.00	1.00		
NS x PriPctChg	0.00	0.00	1.00	
SEC x PriPctChg	0.00	0.00	-0.00	1.00