MEDDELANDEN FRÅN
SVENSKA HANDELSHÖGSKOLAN

SWEDISH SCHOOL OF ECONOMICS
AND BUSINESS ADMINISTRATION
WORKING PAPERS

465

Anders Ekholm & Daniel Pasternack

THE NEGATIVE NEWS THRESHOLD
- AN EXPLANATION FOR NEGATIVE SKEWNESS
IN STOCK RETURNS

DECEMBER 2001

The Negative News Threshold - an Explanation for Negative Skewness in Stock Returns

Key words: stock return distributions, negative skewness, news disclosure

JEL Classification: G10, G12

Anders Ekholm & Daniel Pasternack
Department of Finance and Statistics
Swedish School of Economics and Business Administration
P.O.Box 479
00101 Helsinki, Finland

Distributor:

Library
Swedish School of Economics and Business Administration
P.O.Box 479
00101 Helsinki
Finland

Phone: +358-9-431 33 376, +358-9-431 33 265
Fax: +358-9-431 33 425
E-mail: publ@shh.fi
http://www.shh.fi/link/bib/publications.htm

SHS intressebyrå IB (Oy Casa Security Ab), Helsingfors 2001

ISBN 951-555-711-9
ISSN 0357-4598

The Negative News Threshold - an Explanation for Negative Skewness in Stock Returns

Anders Ekholm* **and Daniel Pasternack**

Swedish School of Economics and Business Administration, Helsinki, Finland

Abstract

A vast literature documents negative skewness and excess kurtosis in stock return distributions on several markets. We approach the issue of negative skewness from a different angle than in previous studies by suggesting a model, which we denote the "negative news threshold" hypothesis, that builds on asymmetrically distributed information and symmetric market responses. Our empirical tests reveal that returns for days when non-scheduled news are disclosed are the source of negative skewness in stock returns. This finding lends solid support to our model and suggests that negative skewness in stock returns is induced by asymmetries in the news disclosure policies of firm management.

JEL classification: G10, G12

Keywords: stock return distributions, negative skewness, news disclosure

* Corresponding author. Swedish School of Economics and Business Administration, P.O. Box 479, 00101 Helsinki, Finland; tel. +358-9-431 33 308; fax. +358-9-431 33 393; e-mail anders.ekholm@shh.fi

We are indebted to Juha-Pekka Kallunki, Matti Keloharju, Gregory Koutmos, Eva Liljeblom, Anders Löflund, and the participants of the GSFFA 2001 Research Workshop for comments and suggestions. We further gratefully acknowledge financial support received for the project from the Säästöpankkien Tutkimussäätiö and the Yrjö Jahnsson foundation.

1 Introduction

Normal distribution of stock returns is one of the most pronounced assumptions underlying central theory and the empirical tools used in financial economics. However, a vast literature[1] documents negative skewness and excess kurtosis in stock return distributions for several markets. Ignoring asymmetries in return distributions, e.g. negative skewness, can lead to major underestimation of risk and thereby to biased pricing of financial instruments such as stocks and standardized option contracts. Furthermore, conditional negative skewness might induce systematical errors in empirical tests based on time-invariant return distributions, such as event studies.

The financial economics literature offers several explanations for negative asymmetries in stock returns. The first and perhaps most well known explanation is that of the leverage effect (Black, 1976 and Christie, 1982). According to the leverage effect hypothesis, a drop in the market value of the firm increases the operating and financial leverage and thus also increases the volatility of the subsequent returns. However, for instance Schwert (1989), and Bekaert and Wu (2000) find that the leverage effect is not of the magnitude to explain the observed asymmetry. In particular this seems to be the case for daily or more frequent return data. Another explanation, denoted 'volatility feedback hypothesis', is developed by Pindyck

[1] Non-normality of stock returns is first documented in the seminal articles by Mandelbrot (1963) and Fama (1965). Further, e.g. Press (1967), Praetz (1972), Smith (1981), Kon (1984), Gray and French (1990), Peiró (1994) and Aparicio and Estrada (2001) explore stock return distributions and find that the normality assumption is in general rejected.
Negative skewness and the related phenomenon of asymmetric volatility is investigated in e.g. Pindyck (1984), French et al.(1987), Campbell and Hentschel (1992), Engle and Ng (1993), Glosten et al.(1993), Braun et al.(1995), Duffee (1995), Bekaert and Wu (2000).

(1984), French et al. (1987), and Campbell and Hentschell (1992). This hypothesis states that news increases the volatility of a stock and hence also its risk premium, which in turn magnifies negative returns and reduces positive returns. On the aggregate this hypothesis results in negatively skewed returns. Poterba and Summers (1986), amongst others, question the plausibility of this hypothesis as volatility shocks in the market generally last for a short time period and hence cannot be expected to change risk premiums. Negative skewness can also be explained by "stochastic bubbles" models, originating from the work by Blanchard and Watson (1982). In this context, negative skewness is generated by the popping of stochastic bubbles, which creates large negative returns in the market.

In the more recent model, put forward by Hong and Stein (1999), short sales constraints prohibit all available information to be disseminated to the market and thus create temporary valuation disequilibria. These temporary disequilibria are corrected by large negative returns following arrival of new information. Chen et al (2001) find some, however indirect, support for this model. An apparent weakness in the Hong and Stein (1999) model is the underlying assumption of heterogeneous investors, of which some show behavior different from full Bayesian rationality.

The lack of statistical power and economic intuition of the above presented hypotheses leads us to the conclusion that we have not yet reached a full understanding of the mechanisms underlying negative skewness in stock returns. We approach the problem of negative skewness from an altogether different angle than in previous studies. Instead of assuming normally distributed information and asymmetric market response, we suggest a model with asymmetrically distributed information and symmetric market response. Our model of asymmetrically distributed information is derived from earlier research in management disclosure practices. We test the predictions of our model using five years of daily return data for the 15 most traded shares on the Helsinki Stock Exchange and document solid support for the model. We find that, in line with the predictions of the model, negative skewness in stock returns is induced by non-scheduled firm specific news disclosures.

The remainder of this paper is organized as follows. Section 2 presents the model and its implications for stock return distributions. Section 3 gives a brief introduction to the market structure of the Helsinki Stock Exchange and describes the data employed in the study. Section 4 presents the main findings and finally, section 5 concludes the study.

2 Hypothesis Development

Our model builds on the fact that the management of a firm has two options when it receives new information regarding the firm: to disclose or to not disclose the news. The result of this consideration is a function of the expected utility for the two alternatives. The expected utility of disclosing news can be expected to be a fairly linear function of the magnitude of the news[2]. The expected utility of disclosing news hence strongly correlates with the changes in value of the firm that follow the disclosure of the news. The second alternative, to not disclose the news, is represented by the expected disutility due to possible litigation and reputation costs that can occur if the management withholds information from the shareholders[3]. We propose that the utility function of not disclosing news has a negative second derivative[4] and thus rapidly decreases in value with the magnitude of the not disclosed news. This springs from the intuition that small news can be withhold by the managements with small, if any, possibility of litigation, but the withholding of large news leads with high certainty to legal consequences.

A rational manager will always select the alternative, disclosing or not disclosing news, which yields higher utility. Figure 1 displays the utility functions of the two alternatives. In graphical terms, the manager will thus switch between the two utility functions in order to create a combination that dominates both functions. This behavior results in disclosing all but moderately negative news, which in turn creates what we denote the “negative news threshold”.

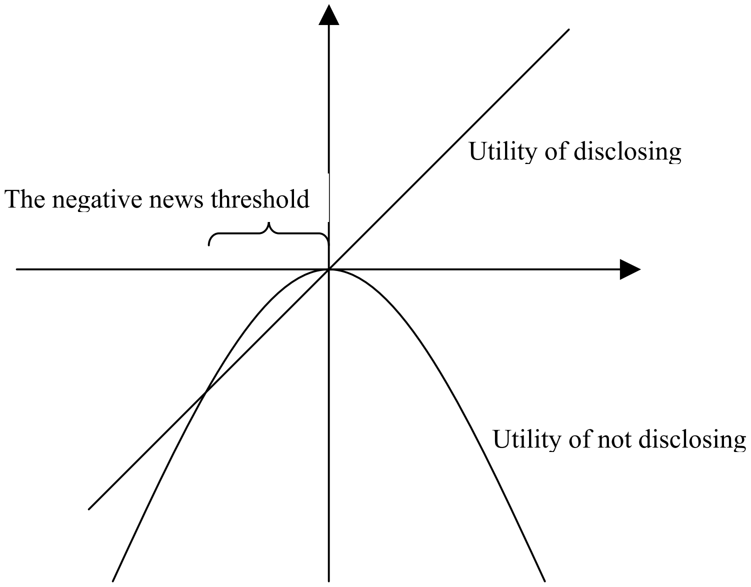
---

[2] Ross (1978) and Milgrom (1981) show that good (bad) news always increases (decreases) firm value. Further, Milgrom (1981) finds that a value-maximizing manager has an incentive to voluntary disclose all positive information and withhold negative information. The managers will disclose all available information only under highly stylized conditions.

[3] See e.g. Dye (1986), Skinner (1994) and Trueman (1997) for discussion on disclosure policies and related costs.

[4] For instance, the general function $f(X)=aX^2$ where $a<0$ satisfies this condition.

Figure 1
Utility functions for disclosing and not disclosing non-scheduled news



The above presented "negative news threshold" hypothesis implies that returns following non-scheduled news[5] exhibit negative skewness, since the management withholds the news items that fall within the "negative news threshold". This is true since the omitted moderately negative observations will alter the mean of the distribution to the right and the distribution will become asymmetric around the mean[6]. The created distribution has excessively large probability mass for large negative observations, or is in other words negatively skewed.

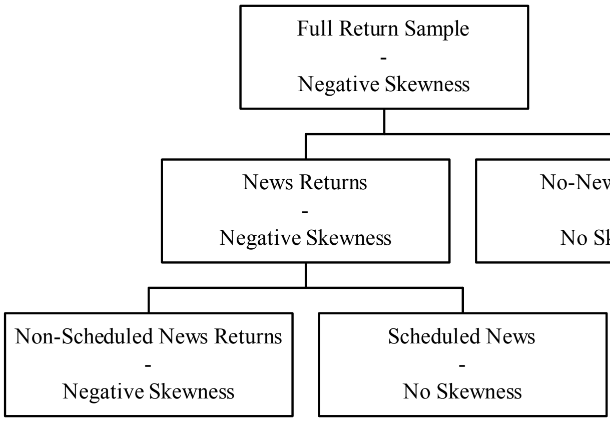
---

[5] We recognize that the management cannot choose to withhold news items that are scheduled in advance, e.g. interim and annual reports. Hence, the "negative news threshold" hypothesis holds only for news items that are not scheduled to be released.

[6] Naturally some of these omitted moderately negative news will eventually be disclosed as they are magnified enough to exceed the negative news threshold. Further, another fraction of the moderately negative news will be neutralized due to actions undertaken by the management in order to correct the problem.

We test the "negative news threshold" hypothesis by investigating whether the above-presented projections hold true in the data. The expected skewness for different samples of returns is schematically described in Figure 2.

Figure 2
Expected Skewness for Different Samples of Returns



3 Data Set

We retrieve daily volumes and closing prices[7] for all stocks on the Helsinki Stock Exchange (HEX) from the Datastream information service. In order to avoid the pitfalls of infrequent trading, the 15 most traded stocks are identified on an annual basis by computing the daily EUR turnover and aggregating these turnovers up to yearly values. This procedure identifies altogether 28 stocks that belong to the 15 most traded stocks for some of the investigated years. We then gather all news items for these 15 by EUR volume most traded stocks for the time period 1.5.1996 to 30.4.2001 from the HEX. Altogether this procedure results in 4680 unique news items, when we delete multiple news items for the same day and firm. As all firms

[7] Adjusted for splits and dividends.

listed on the HEX are compelled to submit their news items through the HEX, the gathered news items represent a rather complete coverage of firm specific news. We calculate 1-day logarithmic and abnormal logarithmic returns[8] for each share for the above defined time period (1.5.1996 to 30.4.2001).

Further, we divide the return sample into news and no-news return samples. We define news returns as close-to-close returns beginning from the closing price for the day before the announcement day and ending at the close of the announcement day. No-news returns we define as close-to-close returns for days without firm specific announcements[9]. We also define two subsets of news, scheduled and non-scheduled. The scheduled news sample includes the disclosure of annual and interim reports, which occur at dates publicly announced in advance. The remaining news items form the non-scheduled news sample.

3.1 Abnormal Logarithmic Returns

Expected returns are calculated according to the market model methodology[10]. For each stock and each day, daily logarithmic returns for the preceding 365 calendar

---

[8] Logarithmic returns are defined as $\ln(P_t/P_{t-1})$, where P_t equals the closing price at time t. Abnormal logarithmic returns are defined in the section "Abnormal Logarithmic Returns". We use abnormal logarithmic returns to be able to compare skewness in scheduled and non-scheduled news samples. Using logarithmic returns does not allow for making inferences, since we only get 3-4 observations of scheduled news per firm per year. However, abnormal logarithmic returns can be pooled together over different firms.

[9] We are however aware of the fact that some news reported by other media than the firm, rumors and other unofficial information is not included in our news items database. The news items however represent the most significant information source since firms are obliged to submit all their information through the Helsinki Stock Exchange.

[10] See Campbell, Lo and MacKinlay (1997), pages 149-180

days[11] are first OLS regressed against corresponding return data for the HEX Portfolio Index[12], resulting in altogether 16986 estimated models. The expected logarithmic returns are then calculated for each stock and each day by implementing the market model estimates and actual logarithmic returns for the HEX Portfolio Index. Abnormal logarithmic returns are finally calculated by subtracting expected returns for each stock and day from the corresponding observed returns and transforming these returns to logarithmic returns.

3.2 The Helsinki Stock Exchange

Table 1 presents the summary statistics for the 1-day logarithmic returns for the HEX Portfolio Index. The average annual return for the investigated time period is 18.86%, which can be considered to be somewhat above the long-term expected return. However, the data includes both periods of strong growth and decline, hence providing samples of returns under different market conditions.

Table 1
1-Day Logarithmic Returns for the HEX Portfolio Index

Table 1 displays sample moments for 1-day logarithmic returns for the HEX (Helsinki Stock Exchange) Portfolio Index during the time period 1.5.1996-30.4.2001. Skewness (Skw) and excess kurtosis (Krt) are asymptotically distributed N(0, 6/N) and N(0, 24/N), respectively. J-B denotes the Jarque-Bera test statistic for normality, which is calculated as N [$skewness^2$ / 6 + $kurtosis^2$ / 24] and is asymptotically distributed as chi-square with two degrees of freedom. p(S) denotes the probability value of the estimated statistic S.

N	Mean	Std.Dev	Min	Max	Skw	p(Skw)	Krt	p(Krt)	J-B	p(J-B)
1304	0.07%	1.4%	-7.4%	6.7%	-0.36	0.00	3.01	0.00	522.53	0.00

[11] A minimum of 365 * 5/7 * 90% = 234 daily return observations is required to form a valid market model for each stock and day.

The statistics in Table 1 further show that significant negative skewness can be documented for the Finnish stock market on an aggregate level, which is in line with previous findings for an array of stock markets and time periods.

4 Results

Tests for skewness are performed for the different samples specified earlier. Below we report results for the different samples in the order specified in Figure 2 in the "Hypothesis Development" section.

[12] The HEX Portfolio Index is a value weighted index where all firms listed on the main list of the Helsinki Stock Exchange are represented. However, the weight of any individual firm is limited to 10% thus eliminating the dominance of a few big firms listed on the HEX (especially Nokia).

Table 2
1 Day Logarithmic and Abnormal Logarithmic Returns for the Full Sample

Table 2 displays sample moments for 1-day logarithmic and abnormal logarithmic returns for the 15 most traded shares on the Helsinki Stock Exchange during the time period 1.5.1996-30.4.2001. The 15 most traded shares are evaluated on an annual basis by the daily EUR volume, resulting in altogether 28 stocks belonging to this group during the overall time period. Skewness (Skw) and excess kurtosis (Krt) are asymptotically distributed N(0, 6/N) and N(0, 24/N), respectively. J-B denotes the Jarque-Bera test statistic for normality, which is calculated as N [$skewness^2$ / 6 + $kurtosis^2$ / 24] and is asymptotically distributed as chi-square with two degrees of freedom. p(S) denotes the probability value of the estimated statistic S. The "All" row displays averages for the statistics calculated for the individual stocks. The probabilities for the "All" row are calculated on the average statistics. The mean return on the "All" row is an observation weighted average of the mean returns of the individual stocks. Abnormal logarithmic returns are calculated using 365 calendar day market models, which are re-estimated on a daily basis.

Name	N	Mean	Std.Dev	Min	Max	Skw	p(Skw)	Krt	p(Krt)	J-B	p(J-B)
COMPTEL	357	-0.03%	5.6%	-22.3%	19.9%	0.25	0.05	1.74	0.00	48.94	0.00
ELCOTEQ NET.CORP. A	345	-0.12%	7.3%	-79.4%	30.0%	-3.12	0.00	41.00	0.00	24730.61	0.00
ELISA COMMS.	478	-0.02%	4.1%	-21.5%	14.9%	-0.06	0.59	2.77	0.00	152.67	0.00
F - SECURE	260	-0.04%	6.6%	-29.6%	19.4%	0.10	0.50	2.03	0.00	45.31	0.00
FINNAIR	175	-0.09%	1.4%	-9.2%	3.8%	-1.86	0.00	11.23	0.00	1019.56	0.00
FINNLINES	697	0.15%	2.1%	-12.6%	12.0%	-0.14	0.14	4.93	0.00	707.66	0.00
FORTUM CORP.	261	-0.05%	1.7%	-6.3%	8.2%	0.93	0.00	4.90	0.00	298.85	0.00
HUHTAMAKI	697	0.04%	2.2%	-22.9%	16.4%	-1.04	0.00	20.20	0.00	11979.83	0.00
JOT AUTOMATION	609	-0.10%	5.4%	-45.8%	26.3%	-1.61	0.00	18.61	0.00	9056.80	0.00
KEMIRA	436	0.04%	1.7%	-6.2%	6.2%	0.14	0.24	1.62	0.00	49.19	0.00
M - REAL B	958	0.09%	2.3%	-8.3%	10.8%	0.10	0.21	1.72	0.00	119.57	0.00
METSO	697	0.01%	2.0%	-11.0%	13.1%	0.09	0.33	6.24	0.00	1133.46	0.00
NOKIA	1298	0.23%	3.3%	-23.9%	19.8%	-0.17	0.02	4.40	0.00	1053.80	0.00
NORDEA FDR	324	0.05%	2.1%	-6.8%	7.1%	0.09	0.53	0.86	0.00	10.38	0.01
ORION B	958	0.05%	1.8%	-11.1%	7.8%	-0.10	0.21	4.02	0.00	646.44	0.00
OUTOKUMPU A	436	-0.05%	1.7%	-9.1%	6.5%	-0.50	0.00	4.18	0.00	336.25	0.00
PERLOS	482	0.03%	4.4%	-16.7%	20.1%	0.09	0.44	1.90	0.00	73.15	0.00
POHJOLA YHTYMA B	1287	0.26%	2.3%	-9.7%	12.9%	0.46	0.00	3.16	0.00	582.12	0.00
RAISIO YHTYMA V	783	-0.02%	3.8%	-34.6%	25.6%	-0.63	0.00	14.11	0.00	6548.53	0.00
RAUTARUUKKI K	697	0.02%	1.9%	-9.5%	8.6%	-0.04	0.64	3.03	0.00	267.18	0.00
SAMPO A	868	0.11%	2.9%	-11.8%	13.7%	0.44	0.00	2.71	0.00	293.99	0.00
SONERA	644	0.03%	4.8%	-16.5%	16.6%	-0.15	0.13	0.79	0.00	19.14	0.00
STONESOFT	346	-0.29%	8.0%	-89.8%	23.2%	-3.91	0.00	44.92	0.00	29975.44	0.00
STORA ENSO R	867	0.08%	2.8%	-16.6%	12.8%	0.07	0.39	2.40	0.00	208.36	0.00
TIETOENATOR	1302	0.15%	3.5%	-30.0%	15.4%	-0.54	0.00	6.13	0.00	2099.43	0.00
UPM - KYMMENE	1300	0.07%	2.3%	-15.2%	9.5%	-0.21	0.00	3.54	0.00	688.99	0.00
UPONOR	436	0.25%	1.7%	-8.1%	7.1%	0.23	0.05	2.98	0.00	165.05	0.00
WARTSILA B	782	0.04%	2.3%	-23.0%	19.5%	-0.59	0.00	22.24	0.00	16158.57	0.00
All	671	0.07%	3.3%	-21.7%	14.6%	-0.42	0.00	8.51	0.00	3873.90	0.00
Abnormal LN Returns (All Stocks)	16986	-0.04%	2.7%	-75.0%	27.2%	-2.88	0.00	87.45	0.00	5436269.78	0.00

Table 2 shows that both logarithmic and abnormal logarithmic returns in the full sample show significant negative skewness. As earlier mentioned, this characteristic is documented by a vast literature and is the starting point of our research.

Table 3
1 Day Logarithmic and Abnormal Logarithmic Returns for the News Sample

Table 3 displays sample moments for 1-day logarithmic and abnormal logarithmic returns for days during which firm specific news is disclosed, for the 15 most traded shares on the Helsinki Stock Exchange during the time period 1.5.1996-30.4.2001. The 15 most traded shares are evaluated on an annual basis by the daily EUR volume, resulting in altogether 28 stocks belonging to this group during the overall time period. Skewness (Skw) and excess kurtosis (Krt) are asymptotically distributed N(0, 6/N) and N(0, 24/N), respectively. J-B denotes the Jarque-Bera test statistic for normality, which is calculated as N [$skewness^2$ / 6 + $kurtosis^2$ / 24] and is asymptotically distributed as chi-square with two degrees of freedom. p(S) denotes the probability value of the estimated statistic S. The "All" row displays averages for the statistics calculated for the individual stocks. The probabilities for the "All" row are calculated on the average statistics. The mean return on the "All" row is an observation weighted average of the mean returns of the individual stocks. Abnormal logarithmic returns are calculated using 365 calendar day market models, which are re-estimated on a daily basis.

Name	N	Mean	Std.Dev	Min	Max	Skw	p(Skw)	Krt	p(Krt)	J-B	p(J-B)
COMPTEL	46	0.73%	8.0%	-17.2%	17.9%	0.24	0.51	-0.27	0.71	0.57	0.75
ELCOTEQ NET.CORP. A	51	1.20%	14.4%	-79.4%	30.0%	-3.20	0.00	19.83	0.00	923.11	0.00
ELISA COMMS.	67	-0.51%	5.2%	-21.5%	12.1%	-0.98	0.00	3.38	0.00	42.81	0.00
F - SECURE	40	0.09%	9.8%	-29.6%	16.8%	-0.72	0.06	1.21	0.12	5.90	0.05
FINNAIR	26	-0.48%	2.3%	-9.2%	3.8%	-2.19	0.00	8.45	0.00	98.01	0.00
FINNLINES	39	0.34%	2.5%	-7.2%	7.1%	-0.08	0.84	2.15	0.01	7.55	0.02
FORTUM CORP.	40	0.23%	2.1%	-4.4%	6.3%	0.25	0.52	0.75	0.33	1.34	0.51
HUHTAMAKI	61	-0.31%	4.3%	-22.9%	16.4%	-1.52	0.00	15.50	0.00	634.09	0.00
JOT AUTOMATION	95	-0.61%	9.6%	-45.8%	26.3%	-2.35	0.00	9.48	0.00	442.65	0.00
KEMIRA	49	-0.04%	1.7%	-4.1%	5.4%	0.55	0.12	2.20	0.00	12.33	0.00
M - REAL B	96	0.36%	2.6%	-7.1%	10.0%	0.41	0.10	1.65	0.00	13.61	0.00
METSO	99	0.42%	2.3%	-5.4%	13.1%	1.67	0.00	8.90	0.00	372.77	0.00
NOKIA	211	0.63%	4.3%	-23.9%	19.8%	-0.27	0.11	6.34	0.00	356.11	0.00
NORDEA FDR	79	0.16%	2.6%	-6.5%	6.5%	0.04	0.87	-0.07	0.89	0.04	0.98
ORION B	69	0.36%	2.3%	-4.8%	6.0%	-0.15	0.60	0.17	0.78	0.35	0.84
OUTOKUMPU A	25	-0.39%	1.8%	-6.6%	2.0%	-1.86	0.00	4.98	0.00	40.27	0.00
PERLOS	35	1.39%	7.0%	-16.5%	20.1%	-0.17	0.68	1.50	0.07	3.46	0.18
POHJOLA YHTYMA B	136	0.59%	2.9%	-7.5%	10.9%	0.37	0.08	1.63	0.00	18.19	0.00
RAISIO YHTYMA V	119	0.38%	5.1%	-22.3%	25.6%	0.08	0.72	8.96	0.00	397.86	0.00
RAUTARUUKKI K	21	0.59%	2.9%	-6.2%	8.2%	0.06	0.90	2.27	0.03	4.53	0.10
SAMPO A	162	0.24%	3.1%	-9.2%	12.7%	0.72	0.00	2.37	0.00	51.58	0.00
SONERA	135	-0.37%	5.2%	-15.5%	12.2%	-0.22	0.30	0.00	0.99	1.09	0.58
STONESOFT	59	-2.53%	14.7%	-89.8%	22.7%	-3.64	0.00	21.35	0.00	1251.36	0.00
STORA ENSO R	209	-0.17%	3.1%	-16.6%	12.8%	-0.21	0.20	4.82	0.00	203.92	0.00
TIETOENATOR	259	0.02%	4.9%	-30.0%	15.4%	-1.06	0.00	5.65	0.00	393.29	0.00
UPM - KYMMENE	388	0.01%	2.5%	-13.1%	9.5%	-0.19	0.12	2.61	0.00	112.52	0.00
UPONOR	37	0.47%	2.3%	-4.8%	6.2%	0.38	0.35	0.85	0.29	2.00	0.37
WARTSILA B	61	0.28%	4.9%	-23.0%	19.5%	-0.48	0.13	11.89	0.00	361.93	0.00
All	97	0.10%	4.8%	-19.7%	13.4%	-0.52	0.04	5.31	0.00	205.47	0.00
Abnormal LN Returns (All Stocks)	2441	0.07%	4.5%	-75.0%	27.2%	-4.61	0.00	76.98	0.00	611313.90	0.00

As displayed by Table 3, both logarithmic and abnormal logarithmic returns in the news sample show significant negative skewness. This finding supports our "negative news threshold" hypothesis, as negative skewness is expected.

Table 4
1 Day Logarithmic and Abnormal Logarithmic Returns for the No-News Sample

Table 4 displays sample moments for 1-day logarithmic and abnormal logarithmic returns for days during which firm specific news is not disclosed, for the 15 most traded shares on the Helsinki Stock Exchange during the time period 1.5.1996-30.4.2001. The 15 most traded shares are evaluated on an annual basis by the daily EUR volume, resulting in altogether 28 stocks belonging to this group during the overall time period. Skewness (Skw) and excess kurtosis (Krt) are asymptotically distributed N(0, 6/N) and N(0, 24/N), respectively. J-B denotes the Jarque-Bera test statistic for normality, which is calculated as N [skewness^2 / 6 + kurtosis^2 / 24] and is asymptotically distributed as chi-square with two degrees of freedom. p(S) denotes the probability value of the estimated statistic S. The "All" row displays averages for the statistics calculated for the individual stocks. The probabilities for the "All" row are calculated on the average statistics. The mean return on the "All" row is an observation weighted average of the mean returns of the individual stocks. Abnormal logarithmic returns are calculated using 365 calendar day market models, which are re-estimated on a daily basis.

Name	N	Mean	Std.Dev	Min	Max	Skw	p(Skw)	Krt	p(Krt)	J-B	p(J-B)
COMPTEL	311	-0.15%	5.1%	-22.3%	19.9%	0.15	0.28	2.26	0.00	67.09	0.00
ELCOTEQ NET.CORP. A	294	-0.35%	5.2%	-20.6%	23.1%	0.10	0.46	2.56	0.00	80.71	0.00
ELISA COMMS.	411	0.06%	3.9%	-14.5%	14.9%	0.33	0.01	1.97	0.00	73.38	0.00
F - SECURE	220	-0.07%	5.8%	-14.5%	19.4%	0.74	0.00	1.14	0.00	31.88	0.00
FINNAIR	149	-0.02%	1.1%	-3.6%	2.6%	-0.43	0.03	0.77	0.06	8.30	0.02
FINNLINES	658	0.14%	2.1%	-12.6%	12.0%	-0.15	0.12	5.23	0.00	753.28	0.00
FORTUM CORP.	221	-0.10%	1.6%	-6.3%	8.2%	1.14	0.00	6.77	0.00	469.28	0.00
HUHTAMAKI	636	0.07%	1.9%	-9.3%	9.1%	-0.04	0.70	2.43	0.00	157.01	0.00
JOT AUTOMATION	514	-0.01%	4.3%	-12.5%	26.3%	1.17	0.00	5.79	0.00	835.12	0.00
KEMIRA	387	0.05%	1.7%	-6.2%	6.2%	0.09	0.49	1.60	0.00	41.93	0.00
M - REAL B	862	0.06%	2.3%	-8.3%	10.8%	0.04	0.60	1.71	0.00	105.09	0.00
METSO	598	-0.06%	2.0%	-11.0%	9.4%	-0.38	0.00	5.00	0.00	636.93	0.00
NOKIA	1087	0.15%	3.1%	-12.2%	16.0%	-0.18	0.02	2.10	0.00	204.51	0.00
NORDEA FDR	245	0.01%	1.9%	-6.8%	7.1%	0.07	0.66	1.29	0.00	17.24	0.00
ORION B	889	0.03%	1.7%	-11.1%	7.8%	-0.12	0.15	4.67	0.00	810.94	0.00
OUTOKUMPU A	411	-0.02%	1.7%	-9.1%	6.5%	-0.41	0.00	4.14	0.00	304.28	0.00
PERLOS	447	-0.07%	4.1%	-16.7%	13.1%	0.03	0.82	1.17	0.00	25.71	0.00
POHJOLA YHTYMA B	1151	0.22%	2.2%	-9.7%	12.9%	0.44	0.00	3.39	0.00	589.46	0.00
RAISIO YHTYMA V	664	-0.09%	3.5%	-34.6%	16.7%	-1.04	0.00	15.35	0.00	6636.37	0.00
RAUTARUUKKI K	676	0.00%	1.9%	-9.5%	8.6%	-0.09	0.34	2.97	0.00	248.68	0.00
SAMPO A	706	0.08%	2.8%	-11.8%	13.7%	0.34	0.00	2.79	0.00	242.11	0.00
SONERA	509	0.13%	4.6%	-16.5%	16.6%	-0.10	0.34	1.07	0.00	25.20	0.00
STONESOFT	287	0.17%	5.7%	-18.6%	23.2%	0.48	0.00	2.24	0.00	70.92	0.00
STORA ENSO R	658	0.16%	2.6%	-8.3%	10.3%	0.24	0.01	0.85	0.00	26.44	0.00
TIETOENATOR	1043	0.19%	3.0%	-13.8%	12.6%	0.13	0.09	2.19	0.00	211.27	0.00
UPM - KYMMENE	912	0.10%	2.2%	-15.2%	9.3%	-0.20	0.01	4.07	0.00	635.06	0.00
UPONOR	399	0.23%	1.7%	-8.1%	7.1%	0.16	0.18	3.34	0.00	187.44	0.00
WARTSILA B	721	0.02%	2.0%	-13.3%	10.4%	-0.62	0.00	7.53	0.00	1748.86	0.00
All	574	0.06%	2.9%	-12.7%	12.6%	0.07	0.51	3.44	0.00	544.45	0.00
Abnormal LN Returns (All Stocks)	14545	-0.06%	2.3%	-35.2%	23.3%	0.12	0.00	10.67	0.00	68970.03	0.00

As expected, Table 4 shows that negative skewness cannot be found in the no-news sample. In fact, the abnormal logarithmic returns even display positive skewness. We hence document evidence that supports our hypothesis, and conclude that the negative skewness in the full sample is induced by the news sample.

Table 5
1-Day Abnormal Logarithmic Returns for the Scheduled and Non-Scheduled News Samples

Table 5 displays sample moments for 1-day abnormal logarithmic returns for days during which firm specific scheduled and non-scheduled news is disclosed, for the 15 most traded shares on the Helsinki Stock Exchange during the time period 1.5.1996-30.4.2001. The scheduled news sample includes the disclosure of annual and interim reports, which occur at dates publicly announced in advance. The remaining news items form the non-scheduled news sample. The 15 most traded shares are evaluated on an annual basis by the daily EUR volume, resulting in altogether 28 stocks belonging to this group during the overall time period. Skewness (Skw) and excess kurtosis (Krt) are asymptotically distributed N(0, 6/N) and N(0, 24/N), respectively. J-B denotes the Jarque-Bera test statistic for normality, which is calculated as N [skewness^2 / 6 + kurtosis^2 / 24] and is asymptotically distributed as chi-square with two degrees of freedom. p(S) denotes the probability value of the estimated statistic S. Abnormal logarithmic returns are calculated using 365 calendar day market models, which are re-estimated on a daily basis.

	Scheduled News	Non-Scheduled News
N	220	2221
Mean	0.73%	0.01%
Std.Dev	6.3%	4.3%
Min	-26.2%	-75.0%
Max	27.2%	25.2%
Skw	0.61	-6.16
p(Skw)	0.00	0.00
Krt	5.88	100.33
p(Krt)	0.00	0.00
J-B	330	945608
p(J-B)	0.00	0.00

Table 5 confirms that negative skewness in the news sample is induced by the non-scheduled news sample. This is apparent, since the scheduled news sample shows significantly positive skewness while the non-scheduled news is significantly negatively skewed.

In summary, we find that negative skewness in daily returns is induced by returns for days when firm specific news is disclosed. Further, a closer investigation reveals that the negative skewness for the news sample is generated by negative skewness for non-scheduled news. Our results hence lend solid support to the "negative news threshold" hypothesis.

5 Summary and Conclusions

Normal distribution of stock returns is one of the most pronounced assumptions underlying central theory and the empirical tools used in financial economics. However, a vast literature documents negative skewness and excess kurtosis in stock return distributions for several markets. In this paper, we approach the problem of negative skewness from an altogether different angle than in previous studies. Instead of assuming normally distributed information and asymmetric market response, we suggest a model with asymmetrically distributed information and symmetric market response. Our model of asymmetrically distributed information, which we denote the "negative news threshold" hypothesis, is derived from earlier research in management disclosure practices and states that negative skewness in stock returns is generated by management disclosure practices. More specifically, the "negative news threshold" hypothesis implies that negative skewness in stock returns is mainly induced by returns for days when non-scheduled firm specific news items are disclosed.

We test the predictions of our model using five years of daily return data for the 15 most traded shares on the Helsinki Stock Exchange. We find that negative skewness in daily returns is induced by returns for days when firm specific news is disclosed. Further, a closer investigation reveals that the negative skewness for the news sample is generated by negative skewness for non-scheduled news. Our results hence lend solid support to the "negative news threshold" hypothesis, which states that firm management discloses information asymmetrically.

References

Aparicio, F and Estrada, J.. 2001. Empirical Distributions of Stock Returns: European Securities Markets, 1990-95. The European Journal of Finance 7: 1-21

Bekaert, G., Wu, G., 2000. Asymmetric volatility and risk in equity markets. Review of Financial Studies 13, 1–42.

Black, F., 1976. Studies of stock price volatility changes. Proceedings of the 1976 Meetings of the American Statistical Association, Business and Economical Statistics Section, 177–181.

Blanchard, O.J., Watson, M.W., 1982. Bubbles, rational expectations, and financial markets. In: Wachtel, P. (Ed.), Crises in Economic and Financial Structure. Lexington Books, Lexington, MA, 295–315.

Braun, P.A., Nelson, D.B., Sunier, A.M., 1995. Good news, bad news, volatility, and betas. Journal of Finance 50, 1575–1603.

Campbell, J.Y., Hentschel, L., 1992. No news is good news: an asymmetric model of changing volatility in stock returns. Journal of Financial Economics 31, 281–318.

Campbell J., A. Lo and A. MacKinlay, 1997, The Econometrics of Financial Markets, Princeton University Press.

Chen, J., Hong, H. and Stein, J.C., 2001. Forecasting crashes: trading volume, past returns, and conditional skewness in stock prices. Journal of Financial Economics 61, 345-381

Christie, A.A., 1982. The stochastic behavior of common stock variances – value, leverage and interest rate effects. Journal of Financial Economics 10, 407 – 432.

Duffee, G.R., 1995. Stock returns and volatility: a firm-level analysis. Journal of Financial Economics 37, 399–420.

Dye, R.A., 1986. Proprietary and Nonproprietary Disclosures. Journal of Business 59: 331-357

Engle, R.F., Ng, V.K., 1993. Measuring and testing the impact of news on volatility. Journal of Finance 48, 1749–1778.

Fama, E.. 1965. The Behavior of Stock Market Prices. Journal of Business 38: 34-105

French, K.R., Schwert, G.W., Stambaugh,R.F., 1987. Expected stock returns and volatility. Journal of Financial Economics 19, 3–29.

Glosten, L., Jagannathan, R., Runkle, D.E., 1993. On the relation between the expected value and the volatility of the nominal excess return on stocks. Journal of Finance 48, 1779–1801.

Gray, B. and French, D.. 1990. Empirical Comparisons of Distributional Models for Stock Index Returns Journal of Business, Finance and Accounting 17: 451-459

Hong, H., Stein, J.C., 1999. Differences of opinion, rational arbitrage and market crashes. NBER Working paper

Kon, S.. 1984. Models of Stock Returns - a Comparison. Journal of Finance 39: 147-165

Mandelbrot, B.. 1963. The Variation of Certain Speculative Prices. Journal of Business 36: 394-419

Milgrom, P.R., 1981. Good News and Bad News: Representation Theorems and Applications. The Bell Journal of Economics 12: 380-391

Peiró, A.. 1994. The Distribution of Stock Returns: International Evidence. Applied Financial Economics 4: 431-439

Pindyck, R.S., 1984. Risk, inflation, and the stock market. American Economic Review 74, 334–351.

Poterba, J.M., Summers, L.H., 1986. The persistence of volatility and stock market fluctuations. American Economic Review 76, 1142–1151.

Praetz, P.. 1972. The Distribution of Share Price Changes, Journal of Business 45: 49-55

Press, J.. 1967. A Compunded Events Model for Security Prices. Journal of Business 40: 317-335

Ross, S.A., 1978. Disclosure Regulation in Financial Markets: Implications of Modern Finance Theory and Signaling Theory. In Issues in Financial Regulation. Franklin Edwards ed.: 177-202

Schwert, G.W., 1989. Why does stock market volatility change over time? Journal of Finance 44, 1115–1153.

Skinner, D.J., 1994. Why Firms Voluntarily Disclose Bad News. Journal of Accounting Research 32: 38-60

Smith, J.. 1981. The Probability Distribution of Market Returns: A Logistic Hypothesis. PhD dissertation, University of Utah

Trueman, B., 1997. Managerial Disclosures and Shareholder Litigation. Review of Accounting Studies 1: 181-199