Stock Price Reactions to Publications of Financial Statements: Evidence from the Moscow Stock Exchange

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The purpose of this research is to analyze the effects of financial reporting on stock prices of the firms, listed on the Moscow Stock Exchange. In this paper, we use the event study method to analyze the impact of publishing corporate news on changes in the stock prices. The daily stock prices of 49 components of the Russia Trading System Index were obtained from Yahoo finance. Data from the years 2014 to 2018 were used to analyze the relation between the behavior of the share prices and the releases of the firms' annual, quarterly, and unscheduled financial statements. We use an ordinary least squares market model to estimate market parameters and calculate abnormal returns. We perform several statistical tests for non-Gaussian distribution and find that there is a significantly abnormal relationship between the publication of financial statements and prices of shares. We argue that the stock prices' volatility on the publication of financial statements is due to an information asymmetry and we therefore discuss recommendations to improve information content of financial statements in Russia.
Keywords: abnormal returns, efficient market hypothesis, EMH, event study, financial reporting, market value

JEL classification: G14, G30, G32

Introduction

A vibrant capital market attracts foreign capital and provides access to capital for firms seeking to raise funds. The Russian capital market has experienced tremendous growth, marked by the mass privatization of state enterprises in the 1990s, the merging of the two main Russian indexes in 2011 to form MOEX, and Russia's accession to the world trade organization in 2012. Various reforms have been undertaken in the financial sector including the adoption of international financial reporting standards (IFRS) in 2012 and continuous review of Russian Accounting Standards (RAS). These steps have been taken to increase market efficiency, inform investors, and steer growth in the Russian financial sector.

This study examines the behavior of stock prices around the release of annual, quarterly, and unscheduled financial statements for companies listed in the Moscow Stock Exchange, more precisely that ones in the Russian Trading System Index (RTS

Index). By testing the efficiency of the Russian stock market, we seek to understand whether publicly available information is included in the stock prices and whether traders can make abnormal profits on the publication of the quarterly and annual financial statements. In an inefficient market, new information is not reflected in stock prices immediately making it possible that predictable price movements occur in the market. Analysts try to use fundamental and technical analysis to predict which stocks are over- or undervalued. This prediction is only possible in an inefficient market (cf. Fama, 1991).

We also seek to identify promising procedures, forms, and requirements for financial statements that ensure adequate information to financial market participants to decrease the difference between the fundamental and the market value. This study can inform researchers, policymakers, and investors on how the market responds to publication of the annual, quarterly, or other financial statement.

Literature Review

Fama (1970) defined an effective market as a market in which all new information is always fully reflected in stock prices. Fama (1991) discusses the quick adjustment of prices to new information in efficient markets within one trading day. Any slower reaction would indicate some inefficiency. In efficient markets, however, all reactions should average out such that it is neither possible to predict future market movements not to construct profitable portfolios. We note that the efficiency of financial markets varies from country to country. For developed financial markets it is reported that they respond fast to new information. Numerous studies have been made testing market response to different announcements, such as earnings announcements, dividends announcements, takeover announcements, and publication of financial statements. On the one hand, Fama, Fisher, Jensen, and Roll (1969) investigated 940 stock splits in the New York stock exchange and concluded that a stock market adjusts itself to reflect new information. On the other hand, some studies, which include Ball and Brown (1968), Khanal and Mishra (2017), as well as Kothari (2006), confirmed that markets respond to earnings and dividends announcements. A suitable methodology to analyze market efficiency is conducted by Jones and Bacon (2007), who use the event study method to study earnings announcements in 50 randomly selected firms.

Stock prices' reactions on the publication of financial statements have been investigated extensively, especially in developed markets. Opong (1996) examined effects of preliminary financial reports on stock prices in the UK. Even though the UK is a developed country, the study finds a significant response on the publication of annual financial statements. Other studies in developed markets include the works of Ball and Brown (1968), Beaver (1968), Foster (1977), and May (1971) in the United States and the works of Brookfield and Morris (1992) as well as Firth (1981) in the UK.

Researchers and analysts continue to investigate whether annual, quarterly, and unscheduled financial statements contain any new information (Ball and Brown, 1968; E. F. Fama et al., 1969; Menike and Wang, 2013). The publication of annual, quarterly or other financial statements might send signals to investors: positive signals cause a rise in stock prices, while negative signals have the opposite effect. In general, steady or rising stock prices indicate a good corporate governance whereas declining stock prices indicate a poor one.

Although various literature has documented an abnormal change in stock prices on the publication of financial statements in developed and emerging markets, research pertaining the Russian financial market is lacking (Ball and Brown, 1968; E. F. Fama, 1970; Menike and Wang, 2013). Menike and Wang (2013) investigated stock prices' reactions to publications of financial statements for companies listed on the Colombo Stock Exchange. The study notes that the abnormal returns are positive upon the announcement of annual reports but are not significant. Nirujah (2015) also investigated stock market reactions to annual financial statements of companies listed on the Colombo stock exchange in Sri Lanka. The study records abnormal returns of stock prices surrounding the publication of financial statements. Choi, Choi, Myers, and Ziebart (2018) investigate financial statement compatibility and informativeness on stock prices and found that compatibility improves informativeness and helps investors predicting future prospects. Hayati (2010) arrives at the same conclusion in Indonesia. The studies show a relationship between financial statements and stock prices. Table. 1 makes a summary of literature on stock prices' reactions to different kinds of news.

[Insert Table 1]

To our knowledge, a comprehensive study is yet to be undertaken in Russia's financial market. We seek to understand how the publication of financial statements affect the prices of shares listed on the Moscow Stock Exchange.

Statistical Analysis

The objective of this research is to examine the behavior of stock prices around the release of annual, quarterly, and unscheduled financial statements for companies listed in the Moscow Stock Exchange. More specifically, we do not focus on the prices themselves, as the comparison of absolute values is not meaningful, but consider the returns of the stocks. For this end, we set up the following hypotheses that will be tested with different kinds of statistical tests.

- H0: There are no abnormal returns surrounding the release of annual, quarterly, and unscheduled financial statements.
- H1: There exist abnormal returns on the publication of annual, quarterly, and unscheduled financial statements.

Sample Selection and Methodology

For our analysis, we obtain the daily stock prices of 49 of the 50 components of the RTS index from Yahoo finance. Furthermore, the respective annual, quarterly, and unscheduled statements are obtained from the companies' websites. The data for one of the components (DIXY Group PJSC) are unavailable. We use the data of five years (2014 to 2018) to analyze the relation between the behavior of the share prices and the releases of the firms' annual, quarterly, and unscheduled financial statements with help of an event study method. This kind of method is used in related work as well, e.g., by Ball and Brown (1968), Fama et al. (1969), and Khanal and Mishra (2017).

In the following, we do not distinguish between the different types of statements published but just denote them all as events. A distinction and the analysis of the different types would require more input data to obtain valid results from the statistical tests, which is not available for the stocks listed in the RTS index. For each event we then define an event window where the point in time of the event is t_e. In our analysis, we set $t_e = 0$. The event is surrounded by a pre and post phase of length k that consist of points in time $t_{pre} \in \{t_e - k, \dots, t_e - 1\}$ and $t_{post} \in \{t_e + 1, \dots, t_e + k\}$, respectively, so that the period surrounding each event can be examined (MacKinlay, 1997). The event window therefore is $T_e = (t_e - k, \dots, t_e - 1, t_e, t_e + 1, \dots, t_e + k)$. In our analysis, we set $k = 10$ and therefore get an event window size of 21, the ten days immediately preceding the event day, the event itself, and ten days immediately following it. Thereby, with days we always mean trading days.

In addition to the event window, we also need an estimation window of length $s > 20$ directly preceding the event window. The estimation window is intended to show the normal performance of an asset whereas the event window shows the presumably abnormal behavior around the event. According to MacKinlay (1997), we set the estimation window to $s = 120$ which is approximately the time between two half-yearly announcements. However, it is not excluded that there are other events in the estimation window as we also have, among others, quarterly announcements, annual and unscheduled events. Of course, in this way the estimation window does not fully reflect only normal behavior, but as the length of the estimation window is distinctly larger than that of the event window, such effects fairly average out. Fig. 1 schematically shows the timeline for our event study.

[Insert Figure 1]

For our analysis, we assume an approximately affine linear dependency between the returns of the RTS Index, i.e. the market portfolio, and any stock that is part of the index, as suggested by MacKinlay (1997). For this, we set up the following linear regression model:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \tag{1}$$

where $R_{i,t}$ is the return of the ith asset at time t, $R_{m,t}$ is the return of the index at time t, and $\varepsilon_{i,t}$ is an error term with $\mathrm{E}[\varepsilon_{i,t}] = 0$ and $\mathrm{Var}[\varepsilon_{i,t}] = \sigma_i^2$. When p_t is the value of an asset at time t, then the return at t is $R_t = \frac{p_t - p_{t-1}}{p_{t-1}}$. The parameters α_i and β_i are to be estimated through the regression using ordinary least squares (OLS) (Sharpe, 1964). This estimation is done with the data of the estimation window. The normal returns are then defined as the values predicted by the model with the respective index values as input. The awaited difference between the predicted and the actual stock returns are attributed to the events, at least to a certain part. Of course, it is likely that there are discrepancies between predicted and actual values when dealing with statistical models, but these discrepancies should be Gaussian distributed. A non-Gaussian distribution of the discrepancies indicates a perceptible influence of the events. The estimations of the parameters α_i and β_i are as follows:

$$\hat{\beta}_i = \frac{\sum_{\tau=t_e-k-s}^{t_e-k-1} (R_{i,\tau} - \hat{\mu}_i)(R_{m,\tau} - \hat{\mu}_m)}{\sum_{t_e-k-s}^{t_e-k-1} (R_{m,\tau} - \hat{\mu}_m)^2} \tag{2}$$

and

$$\hat{\alpha}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_m \quad (3)$$

where

- $\hat{\mu}_i = \frac{1}{s} \sum_{\tau=t_e-k-s}^{t_e-k-1} R_{i,\tau}$

is the average return of asset i in the estimation window and

- $\hat{\mu}_m = \frac{1}{s} \sum_{\tau=t_e-k-s}^{t_e-k-1} R_{m,\tau}$

is the average return of the index in the estimation window. The estimated variance of the model's error term is

$$\hat{\sigma}_i^2 = \frac{1}{s-2} \sum_{\tau=t_e-k-s}^{t_e-k-1} \left(R_{i,\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m,\tau}\right)^2. \quad (4)$$

With the estimated returns $\hat{R}_{i,\tau} = \hat{\alpha}_i + \hat{\beta}_i R_{m,t}$, the (estimated[1]) abnormal returns for stock i in the event window are

$$AR_{i,\tau} = R_{i,\tau} - \hat{R}_{i,\tau} = R_{i,\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m,\tau} \quad (5)$$

for $\tau = t_e - k, \dots, t_e + k$. Under **H0**, these are Gaussian distributed:

- $AR_{i,\tau} \sim \mathcal{N}\left(0, \sigma^2(AR_{i,\tau})\right)$

When performing the regression and estimating the model parameters, we draw N events from all events in our dataset where the estimation windows of these N events may not overlap. This is important to ensure that the abnormal returns are in fact Gaussian distributed under **H0**. Before the drawing, we do some data cleansing in a previous step, i.e., we skip all events with not enough history (no full estimation window) and with missing prices in the estimation and event window. After this, for 49 stocks there remain 876 events in total. In our program, we set $N = 30$.

For the N sampled events, we can calculate the average abnormal return (also: mean abnormal return; AAR) for every period $\tau \in \{t_e - k, \dots, t_e + k\}$:[2]

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[1] In fact, a more appropriate notation would be $\widehat{AR}_{i,\tau}$, but since these values are averaged in the next step, which is marked with a bar sign, the hat sign is omitted to keep the notation simple.

[2] Recall that these points in time (for different events) are not the same from an absolute point of view but are shifted so that they match relatively.

$$\overline{AR}_{\tau} = \frac{1}{N}\sum_{i=1}^{N} AR_{i,\tau} \quad (6)$$

These again can be aggregated over arbitrary time intervals $[\tau_1, \tau_2]$ within the event window to cumulative average abnormal returns (CAARs) through

$$\overline{CAR}(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_{\tau} \quad (7)$$

where $t_e - k \leq \tau_1 \leq \tau_2 \leq t_e + k$. With this notation, it is $\overline{AR}_{\tau} = \overline{CAR}(\tau, \tau)$. For these two average values, AARs and CAARs, their variances are

$$\text{Var}(\overline{AR}_{\tau}) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma_i^2 \quad (8)$$

or, respectively,

$$Var\left(\overline{CAR}(\tau_1, \tau_2)\right) = \sum_{\tau=\tau_1}^{\tau_2} Var(\overline{AR}_{\tau}) \quad (9)$$

For a second, alternative way of calculating Equations (7) and (9), see MacKinlay (1997). Because the event windows of the sampled events do not overlap, the CAARs fulfill

- $\overline{CAR}(\tau_1, \tau_2) \sim \mathcal{N}\left(0, Var\left(\overline{CAR}(\tau_1, \tau_2)\right)\right)$

under **H0**. When calculating the variance in Equation (8), σ_i^2 is substituted by its sample counterpart given in Equation (4). The test statistics for checking the hypotheses at the beginning of Section 3 are:

$$\theta(\tau_1, \tau_2) = \frac{\overline{\text{CAR}}(\tau_1, \tau_2)}{\left(Var\left(\overline{CAR}(\tau_1, \tau_2)\right)\right)^{1/2}} \quad (10)$$

Using θ, the hypotheses can be rewritten:

H0: $\theta \sim \mathcal{N}(0,1)$

H1: $\theta \nsim \mathcal{N}(0,1)$

We perform several statistical tests that check these hypotheses. The results as well as preliminary insights into the data that support the approach described above are given in the next subsection.

Data Analysis and Results

To back the assumption of an affine linear dependency between the stock returns and the index returns as stated in Equation (1), we provide four examples in Fig. 2 showing that the data is more or less scattered along a linear pattern. Of course, especially for the bottom left scatterplot, a linear dependency is debatable (in particular when taking into account its R-squared of 0.076), but for the majority it may be accepted since the scatterplots are football-shaped. An outlier treatment is not performed here.

[Insert Figure 2]

To see that the events indeed have a certain influence on the returns, we present six graphs in Fig. 3 showing the AARs (Equation (6)) of the corresponding samples and the CAARs (Equation (7)) where $\tau_1 = t_e - k = -10$. Looking at the samples in the first row, the announcement at time $\tau = 0$ seems to cause a (lagged) collapse in the AARs (solid line). However, in the left situation when regarding the CAARs (dashed line), this effect seems not to persist whereas in the right situation, the CAARs are gradually decreasing after the event. In both cases, it may be that the published results did not meet the market expectations where especially in the right case, a gap in information before the event may cause the drop of the CAARs after the event.

The examples in the second row show peaks in the AARs around the event period. In the left situation, this peak raises the CAARs for the rest of the event window. The same holds for the right situation although the peak in the AARs is not that high at the event period only but there are several peaks in the pre and post phase as well. This may justify the assumption of not considering solely the event period but also the periods before and after. In both cases, the published information seems to have been good news (or at least better than expected).

The graphs in the third row do not show an apparently special behavior of the AARs and CAARs around the event period. In the left situation, the CAARs may suggest some dampening effect, but they may also indicate an oscillation with a longer period duration. This is not clear by looking just at this graph. In the right situation, the event does not seem to have any remarkable influence on the CAARs as their positive trend more or less remains.

[Insert Figure 3]

The impression that the events have a certain influence on the returns of stocks as seen in the graphs in Fig. 3 is now backed by the results of several statistical tests that check the test statistic θ for (non-)Gaussian distribution. In fact, we conduct all tests for 100 samples, each consisting of 30 events, to get more robust results. The figures are shown only for the first sample. Note that in our case for an event window length of 21 each sample consists of 231 values since $\theta(\tau_1, \tau_2) \sim \mathcal{N}(0,1)$ is tested for all $\tau_1 \leq \tau_2 \in t_e$ and $\sum_{i=1}^{21} = 231$.

At first, we draw a normal Q-Q plot shown in Fig. 4 and notice that towards the edges the values deviate clearly from the theoretical line. This could, in the sample case, indicate a left skewed distribution (fat tails at the left, thin tails at the right). Second, we draw a kernel density plot, i.e., we construct a density out of the discrete values of the sample using the Gaussian kernel shown as the solid line in Fig. 5 and compare the resulting density with the density of the standard Gaussian distribution (dashed line). For the kernel density, we set the bandwidth to 0.25.[3] We see that the two densities differ clearly. In particular, the assumption of left skewness drawn from the Q-Q plot (for this data sample) is backed by the kernel density plot.

[Insert Figure 4]

[Insert Figure 5]

In a next step, we perform six statistical tests for checking whether the test statistic θ is Gaussian distributed (standard normally distributed). We conduct the Kolmogorov-Smirnov test, the Lilliefors test, the Anderson-Darling test, the Jarque-Bera test, the Cramér-von Mises test, and the D'Agostino-Pearson test. We perform all six tests in R using the packages nortest (Lilliefors, Anderson-Darling), tseries (Jarque-Bera), goftest (Cramér-von Mises), and PoweR (D'Agostino-Pearson). The Kolmogorov-Smirnov test is a basic function of R (in its stat-package).

For our 100 samples (each consisting of 231 values and 30 events) we check whether the p-values of the tests are greater than or equal to a significance level of $\alpha =$ 5% (which would mean that **H0** may not be neglected) and count these cases. In turn, in all other cases when the p-value is below 5%, **H0**, i.e. a standard normal distribution of the abnormal returns, may be neglected. The results are shown in Table 2.

[Insert Table 2]

The differences in the results probably stem from the different statistical powers of the tests. For example, the Anderson-Darling test is known to be more sensitive than

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[3] A bandwidth of 0.25 results in the heights of the two curves being approximately the same.

the Kolmogorov-Smirnov test. However, in our tests at most a fourth of the samples are rated to be standard normally distributed (more specifically, it cannot be neglected that the data is standard normally distributed) which means in turn that in three fourth of all samples the cumulative abnormal returns are not Gaussian distributed with zero mean. This indicates some abnormal effect in the returns.

Before we conduct a more thorough discussion of the results in Section 4, we give a few remarks concerning the experiment and the data. As Fig. 3 suggests, there are different effects of the events on the returns. But since we aggregate the returns over 30 arbitrary events, it may be the case that the effects average out leading to the result that **H0** is not neglected (that the event does not seem to have any influence) for such a sample. This could be prevented when classifying the events into different categories (like "good news" and "bad news") as, for example, done by MacKinlay (1997) and aggregating within the classes. Such an approach would need more input data which is not available for the stocks listed in the RTS index. Furthermore, instead of the linear regression model used to assess the normal returns (taking the not so good R-squared values into consideration), there are other possibilities for doing this; some (e.g., constant mean return model, factor model) are mentioned by MacKinlay (1997). The assessment of the normal returns is crucial for the whole event study approach but also here, the method partly depends on the quality and the availability of the input data.

Discussion of the Results

Our results indicate that it is possible for a trader to buy/sell securities before the event and make a profit out of accumulated abnormal returns. We observe three different reactions to events. Firstly, a drop in the AARs indicating that the market was expecting better news than they received, secondly a rise in the AARs indicating that the information was received well in the market, and thirdly a case where the publication does not seem to have any effect on stock prices. Statistical tests confirmed that stock prices respond to the publication of annual, quarterly, and other financial statements.

These results are consistent with those of Dsouza and Mallikarjunappa (2016), Nirujah (2015), and Ball and Brown (1968). However, Dsouza and Mallikarjunappa (2016) use a mean adjusted model, a market-adjusted model, and an OLS market model. They observe three different types of news namely good news, bad news, and neutral news. They use a Run test, a Sign test, and a t-test for statistical significance and find AARs to be insignificant under the mean adjusted model while CAARs are significant.

This means that the market does not absorb new information quickly. Nirujah (2015) argues that the reaction on day zero showing the response of stock prices on publication of financial statements is an indication of market efficiency because the market reacts quickly to this new information (cf. Fama, 1991). However, our results indicate CAARs that extend beyond the event day in the case of good news or bad news which is inconsistent with the efficient market hypothesis (EMH) (Fama, 1970; Fama et al., 1969). Ball and Brown (1968) find that earning figures contain very useful information that is not reflected in stock prices immediately.

These results contradict those of Brookfield and Morris (1992), Firth (1981), Foster (1977), May (1971), and Opong (1996) who conclude that stock prices adjust rapidly to the publicly available information, consistent with the EMH. Firth (1981) investigates the information content of financial statements and concludes both annual and interim financial reports contain substantial information, which is quickly absorbed in the market. Foster (1977) observes that a market's reaction to earning announcements appears to be concentrated on a two days trading period. These results seem to suggest that developed capital markets absorb new information quickly, whereas emerging markets do not.

Conclusion

This study investigates the effects of financial reporting on stock prices of the firms listed on the Moscow Stock Exchange. The study analyses 100 samples, each consisting of 30 events, independent of the underlying stocks/firms and analyzes the relation between the behavior of the share prices and the release of the firms' annual, quarterly, and unscheduled financial statements. We use an ordinary least squares market model to estimate market parameters and calculate abnormal returns. These abnormal returns and cumulative abnormal returns are then aggregated across firms for each date in the event window. For all time intervals, the aggregation over time should be Gaussian distributed when assuming no abnormal effect of the events on the prices. This is analyzed graphically with Q-Q plots and kernel density estimators as well as with statistical hypotheses tests. To get more robust results, we analyze 100 samples and count the cases supporting a (non-)Gaussian distribution.

We find that in the majority of the cases there is a significantly abnormal relationship between the publication of financial statements and the price of shares. The results show that the Russian stock market responds significantly to new information.

This means, analysts and fund managers can use new information to predict future stock returns and, thus, construct profitable portfolios. There is a possibility of generating abnormal returns using publicly available information indicating that the Russian financial market is inefficient. Steps have to be taken to reduce information asymmetry, thereby reducing the difference between fundamental and market value of securities. We argue that inefficiency in the market is a result of information asymmetry and this can be reduced by improving the information content of financial statements in Russia.

Following Choi, Choi, Myers, and Ziebart (2018) and Hayati (2010) the compatibility and informativeness of financial statement have to be increased. It might be useful to investigate the differences concerning the information content and the compatibility between financial statements in Russia and in some developed markets that are assumed to be efficient.

This study raises several questions for a further investigation. First, if the stocks were aggregated into various portfolios such as good news, bad news, and neutral news, what is the effect of the publication of a financial statement on each portfolio? Secondly, Fama and French (1992) investigate effects of several anomalies such as size of the firm, book to market equity, and earning to price ratio on average stock returns. We recommend analyzing the effect of these or similar variables on the Russian market. Thirdly, to improve the information content of financial statements, we recommend investigating promising procedures, forms, and requirements for financial statements that ensure adequate information to financial market participants to decrease the difference between the fundamental and the market value.

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Table 1. A summary of literature on effect of various events on stock prices.

Event type	Author	Country	Conclusion
Stock split	Fama (1969)	United States	Stock market adjusts to reflect new information
Earning announcements	Jones and Bacon (2007)	United States	Significant abnormal returns emerge on the day of the announcement
	Kothari (2001)	United States	Discount rate shocks explain a significant fraction of aggregate stock returns
Dividends announcements	Khanal and Mishra (2017)	United States	Significant abnormal returns emerge on the day of the announcement
Publication of financial statements	Dsouza (2016)	India	There is strong evidence that the Indian stock market is inefficient
	Nirujah (2015)	Sri Lanka	Abnormal returns of stock prices surround the publication of financial statements
	Menike and Wang (2013)	Sri Lanka	Abnormal returns are positive upon announcement of annual reports but are not significant
	Hayati (2010)	Indonesia	Compatibility improves the informativeness and helps investors predict future prospects
	Nasar (2002)	Saudi Arabia	Financial statements shape investors' decisions
	Opong (1996)	United Kingdom	Stock prices adjust rapidly to the publicly available information
	Brookfield and Morris (1992)	United Kingdom	Stock prices adjust rapidly to the publicly available information
	Firth (1981)		Stock prices adjust rapidly to the publicly available information
	Foster (1977)	United States	Stock prices adjust rapidly to the publicly available information and market does not exhibit the predictability pattern
	May (1971)	United States	Stock prices adjust rapidly to the publicly available information and market does not exhibit the predictability pattern
	Ball and Brown (1968)	United States	The study finds a significant response on publication of annual financial statements

Table 2. Number of cases supporting **H0** resp. **H1** with a significance level of 5%

	H0	**H1**
Kolmogorov-Smirnov	2	98
Lilliefors	0	100
Anderson-Darling	20	80
Jarque-Bera	25	75
Cramér-von Mises	2	98
D'Agostino-Pearson	21	79

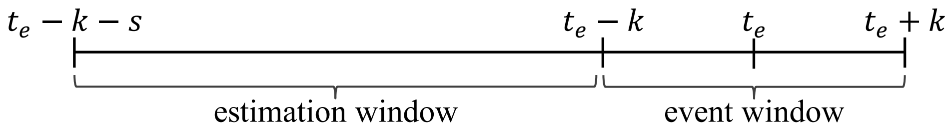

Figure 1. Timeline for the event study

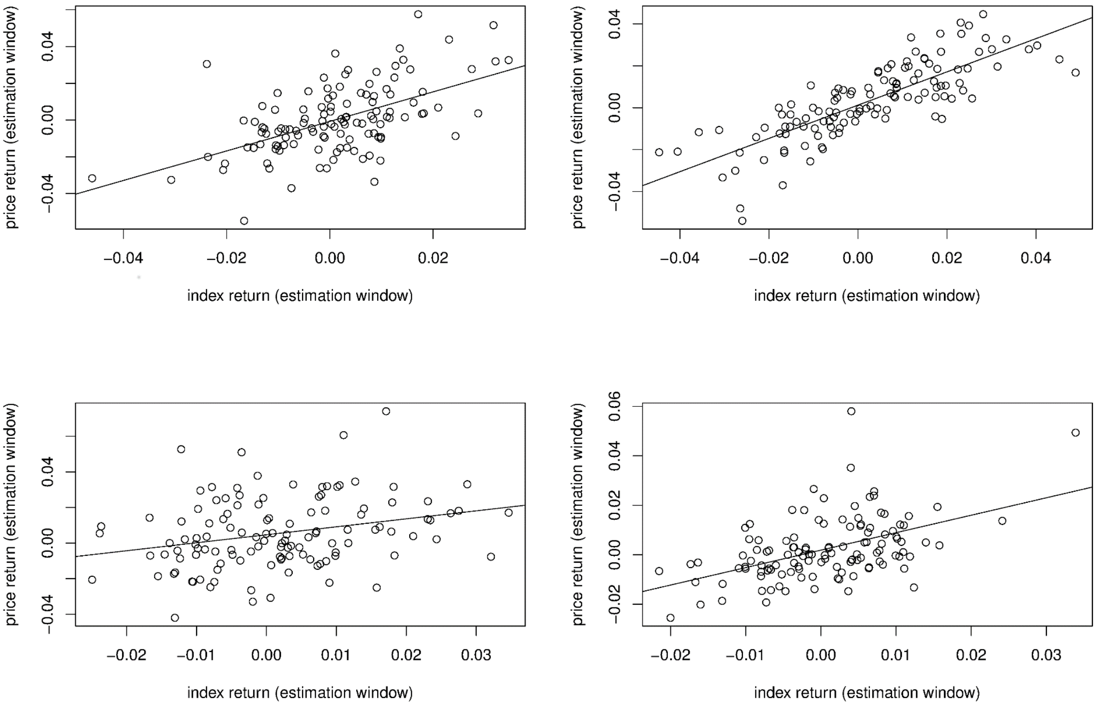

Figure 2. Four scatterplots showing sample index returns mapped against stock returns with R-squared of 0.31 (top left), 0.64 (top right), 0.076 (bottom left), and 0.24 (bottom right)

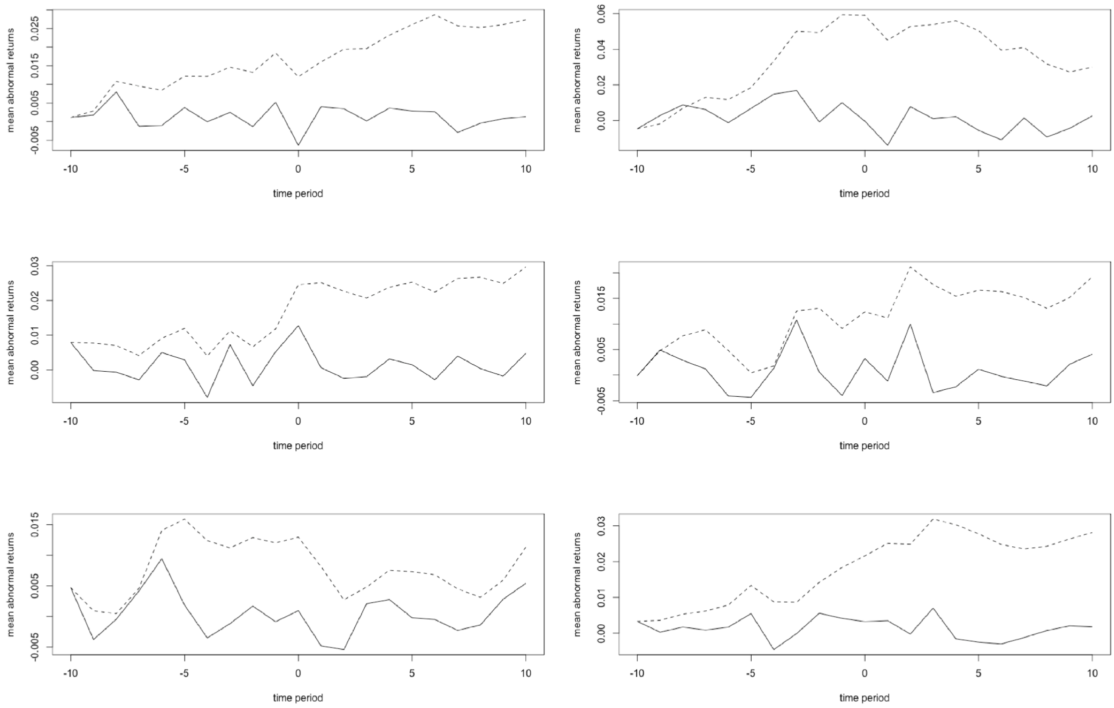

Figure 3. Graphs showing samples of mean abnormal returns (solid lines) and associated cumulative abnormal returns (dashed lines)

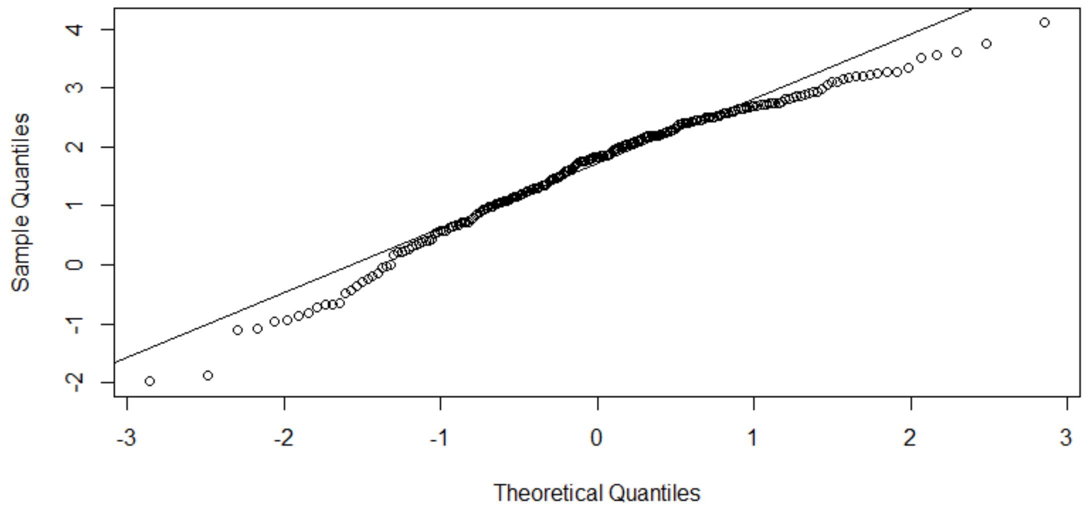

Figure 4. Q-Q plot of the test statistic for one sample indicating a left-skewed distribution

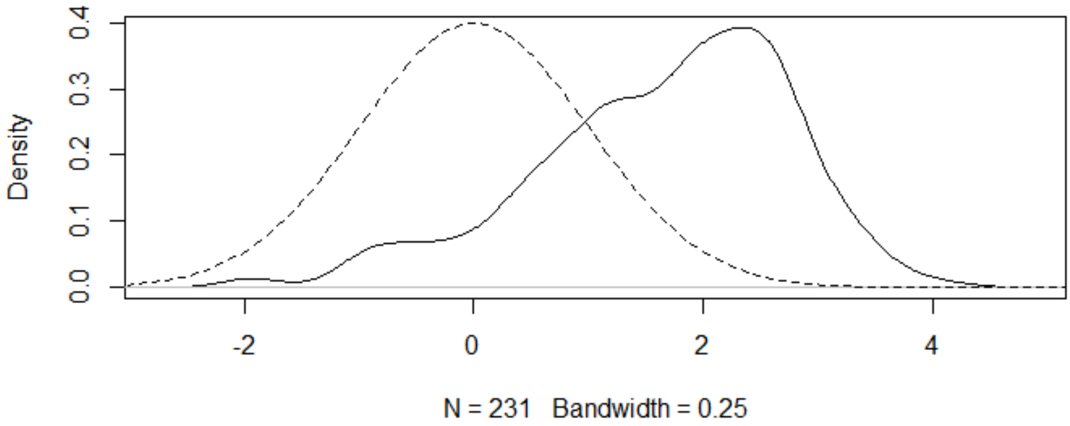

Figure 5. Kernel density plot (solid line) and Gaussian curve (dashed line) clearly differing