STOCK MARKET REACTIONS TO DIVIDEND INITIATIONS AND OMISSIONS

EVIDENCE FROM NASDAQ STOCKHOLM

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Abstract:

This article examines the stock market reactions to dividend initiations and omissions, by studying excess returns for certain time periods. Consistent with prior literature, we find that the excess returns for omitting firms are significantly negative the year before and during the announcement. The post-announcement reaction is, contrary to prior research, significantly positive. For initiating firms we find positive excess returns before and during the announcement, but find no evidence for excess returns afterward. Furthermore, we confirm prior research by showing that the magnitude of the short-run reactions to dividend omissions is significantly larger than the reactions to initiations. Our results show that this asymmetry also holds in the long run following a dividend announcement, something not confirmed in prior research. The short-run asymmetry is stronger in the sectors Financials and Real Estate and reversed for Communication Services. Lastly, we find evidence for the relationship between the post-announcement price response after a dividend omission and the time until the dividend is reinitiated, indicating that a shorter time until reinitiation corresponds to a higher three-year post-announcement excess return.

Keywords:

Dividend policy, dividend initiations, dividend omissions, stock market reactions, Nasdaq Stockholm

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Abstract

This article examines the stock market reactions to dividend initiations and omissions, by studying excess returns for certain time periods. Consistent with prior literature, we find that the excess returns for omitting firms are significantly negative the year before and during the announcement. The post-announcement reaction is, contrary to prior research, significantly positive. For initiating firms we find positive excess returns before and during the announcement, but find no evidence for excess returns afterward. Furthermore, we confirm prior research by showing that the magnitude of the short-run reactions to dividend omissions is significantly larger than the reactions to initiations. Our results show that this asymmetry also holds in the long run following a dividend announcement, something not confirmed in prior research. The short-run asymmetry is stronger in the sectors Financials and Real Estate and reversed for Communication Services. Lastly, we find evidence for the relationship between the post-announcement price response after a dividend omission and the time until the dividend is reinitiated, indicating that a shorter time until reinitiation corresponds to a higher three-year post-announcement excess return.

I. Introduction

Dividends are central to the financial markets and are a key driver of shareholder value. An initiation or omission of a dividend payout is a visible change in corporate policy as well as a clear indicator of the company's financial health, as described in Chang, Kang and Li (2016). Dividends can be paid in different forms. The most common are cash dividends, but stock repurchases, asset dividends and scrip dividends do also occur, according to Booth and Zhou (2017). However, in this paper, we only examine cash dividends. Dividend policy is complex and several factors determine the optimal payout. The general outline is that dividends are paid when there is excess liquidity and a lack of good investment opportunities. Dividends also signal the future financial strategy of the firm. In times of distress, firms may omit their dividends. Likewise, in profitable times firms may initiate dividend payouts (ibid). As dividends are central to the valuation of a stock, these patterns raise the ques-

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tion of how such announcements impact stock market returns for investors.

In this paper, we investigate both long-term and short-term reactions to announcements of dividend initiations and omissions. Earlier studies indicate that there might be excess return in the case of a change in dividend policy. Excess returns are returns that outpace the change in an appropriate benchmark portfolio for a selected time period. There has been substantial research in this area prior to our study, in which some important studies are Healy and Palepu (1988) and Asquith and Mullins (1983). These studies indicates a presence of excess returns in the long run following dividend announcements. Excess returns are indications of underreaction to information, implying that the market's initial reaction does not incorporate all information conveyed. However, some studies, like De Bondt and Thaler (1985, 1987), find evidence for the opposite – overreactions. Another interesting question to study is whether the reactions to initiations and omissions are symmetric. In a hallmark paper from 1995 Michaely, Thaler and Womack study this phenomenon and find evidence for asymmetry. We aim to first replicate some of the findings in Michaely et al. (1995) using Swedish stock market data and then extend the scope of the study to investigate the dividend omissions further. More specifically, we study whether these omissions are permanent or temporary and what the corresponding implications on long-term returns are.

To organize our findings, we have identified three research questions that are central to our study:

1. How does the stock market react to dividend initiation and omission announcements, in the short term and the long term?

2. Are the market responses to dividend initiations and dividend omissions symmetric and proportional to changes in dividend yield?

3. Are the long-term market responses for omitting firms dependent on the time until the dividend is reinitiated?

For the first research question we hypothesize that the excess returns are different from zero in both the short and long terms. For question two, our hypotheses are that the market responses for initiations and omissions are asymmetric and that the excess returns are dependent on changes in dividend yield. Lastly, our third question underlies the hypothesis that the excess returns for omitting firms are dependent on the time until the dividend is reinitiated.

Prior studies have mainly been conducted in the US. This study aims to investigate the theory in the Swedish markets, which we believe is a meaningful environment to study since much of the corporate governance procedures and traditions differ from the US (Randøy and Nielsen, 2002). This study uses recent data from the period 1990 to 2015, compared to the original study that collects data from 1964 to 1988. Data is retrieved from Thomson Reuters *Datastream* and the Swedish Tax Authority, including listed and delisted companies at Nasdaq Stockholm but excluding foreign depositories. For initiations we determine two criteria for being included in the sample; (1) the company should have been listed on Nasdaq Stockholm for at least two years prior to

the announcement and (2) the company should not have paid any dividends before. Similarly for omissions, we have one main criterion; the company should have paid out dividends for at least two consecutive years prior to the announcement. Ten of eleven sectors are represented in the sample, with only Utilities being absent. Our information about the announcing companies contains the announcement dates, the stock prices for selected intervals before and after the announcement date and the index prices for these days. We use the index OMXSPI to compute excess returns and present it for certain intervals, in line with Michaely et al. (1995).

The results from our study indicate that there are significant excess returns in the short run for initiations and omissions. Firms that omit or initiate dividends do perform better or worse than index, accordingly. The excess return for initiations is +1.5 percent (only significant at the 10 percent level), and –2.4 percent (significant at the 5 percent level) for omissions, when measuring the three-day period around the announcement date. In the long run, we do not find any excess returns for initiations but find significant positive excess returns for omissions, contrary to theory. These excess returns are large, +33.4 percent and +44.3 percent for the two-year and three-year period after the announcement, respectively. The results show that omissions generate positive excess returns at a 1 percent significance level.

Subsequently, we run regressions for excess returns to dividend yield changes, to examine if the reactions to omissions and initiations are symmetric or not. The regression is performed by comparing the three-day excess returns to the changes in dividend yield. We present six different regressions in total, using grouped, winsorized and default data. We use each dataset in one regression with the stock price the day before the announcement and in one regression with the one year old price. The regressions indicate that the reaction to omissions is larger than the reaction to initiations, even if the coefficients are not significant in all regressions, which is in line with theory. We complement these findings by also running regressions testing whether the asymmetry is more or less distinct in specific sectors or time periods. The results show that there are no certain patterns for specific years or time periods. However, the reaction is more pronounced within the sectors Financials and Real Estate. On the other hand, one unit change in dividend yield corresponds to a negative effect on the magnitude of the reaction within the sector Communication Services.

We then extend the Michaely et al. (1995) study by investigating whether the time from omission to reinitiation of a dividend affects the three-year excess return by running two separate regressions (one with normalized data and one with default data) that measures the excess return as a function of the time until reinitiation. The regressions show that the three-year excess return is negatively dependent on the time until reinitiation of a dividend that has been omitted, indicating that shorter time until reinitiation results in higher three-year excess return, and vice versa.

Our short-run results to some extent confirm the findings in a previous Swedish study by Alkebäck (1997). The Swedish stock market seems to react to dividend initiation and omission an-

nouncements in the same direction as in the US, but of a smaller magnitude. In our long-term study, we fail to reject the null hypothesis and receive results that are opposite to the results in Michaely et al. (1995). The results from studying the time until the reinitiation of an omitted dividend indicate that a shorter time until reinitiation will generate larger excess returns. A possible explanation for this might be that the majority of the observed omissions took place in severe financial crises. Our study gives rise to some future research topics; extension to other Nordic countries, an in-detail study of why omissions generate positive excess returns or applying the same methodology to dividend changes.

The continued outline of this article is structured as follows. Section II begins with a brief overview of current literature on the research area and a description of our emphasis and contribution to literature. Section III addresses our data and methodology, by discussing the initiation and omission sample selection, benchmark portfolio, return calculations, potential errors and hypotheses. In Section IV we summarize the descriptive statistics of our datasets and in Section V we present the empirical findings in the short term and the long term. We also examine the asymmetry between initiation and omission announcements, as well as the further investigation of reinitiations of omitted dividends. Section VI offers interpretations of our findings and finally some concluding remarks.

II. Literature Review

The area of dividend announcements and corresponding stock market reactions is a well-studied topic of financial research. More specifically, several empirical tests have been performed showing that dividend change announcements are positively correlated with short-term stock returns during the days before and after the announcement. Lintner (1956) was one of the first researchers on the broad topic of dividends, developing a model of the optimal dividend policy. The study finds that a significant amount of information is conveyed in the dividend policy decision and that firms tend to increase (decrease) dividends only if there is a high probability of higher (lower) future cash flows. Modigliani and Miller (1961), on the other hand, present the idea that dividend policy is completely irrelevant under perfect capital markets. This contradiction has contributed to the research and resulted in an increased interest in the topic (Benrud, 2009).

A major contribution to the area of dividend change announcements is Pettit (1972), that determines that "the market makes use of announcements of changes in dividend payments in assessing the value of the security". He concludes that the majority of the information conveyed in the dividend announcement is reflected in the asset price at the end of the announcement period, and hence that the market is efficient on also a short-term basis. On the more narrowed topic of dividend initiation announcements, both Asquith and Mullins (1983) and Healy and Palepu (1988) find a positive relationship between the initiation of a dividend and the firm's future profitability. The latter ones address both dividend initiations and omissions and find that firms initiating dividends have positive earnings changes while an omission of dividend is corresponding

to a negative earnings change. However, Asquith and Mullins (1983) argue that this information is already conveyed in the dividend initiation or omission announcement and subsequently taken into account in the market before the actual earnings announcement, as a sign of management's forecast of future earnings.

A (slightly) more recent paper, that constitutes the foundation for our study, is Michaely et al. (1995) that address the short-term and long-term stock market reactions to dividend initiations and omissions. They study companies listed on the New York Stock Exchange during the period from 1964 to 1988 and find that the short-term excess return when an initiation is announced (the days before and after) is +3.4 percent, and –7.0 percent when an omission is announced. The year before the announcement the excess return is –31.8 percent for omitting firms and +15.1 for initiating firms. One year after an initiation announcement the excess return is +7.5 percent, two years after +15.6 percent and three years after +24.8 percent. For omitting firms, the excess returns are –11.0, –15.0, and –15.3 percent, respectively. Michaely et al. find an asymmetry between reactions to dividend omissions and initiations and conclude that the short-run market reactions are greater when a dividend is omitted, compared to a dividend initiation. They also find that the reactions to dividend initiations and omissions are "distinct from and more pronounced" than the reactions to earnings surprises.

The research on dividend initiations and omissions with evidence from the Swedish stock market is quite limited. Löfqvist (2001) investigates, among other topics in his doctoral thesis, "the information content of dividends" and finds that some of the dividend changes by Swedish firms convey information about future earnings. He concludes that this is due to information asymmetry about the firm's future earnings between shareholders and management. In another doctoral thesis, Alkebäck (1997) discusses the information content in dividend initiations and omissions. The results are contradicting the expected results according to signaling theory and other papers, such as Michaely et al. (1995), since initiations and omissions seem to convey less information than ordinary dividend increases and decreases. We believe that there is a need to study reactions to dividend initiations and omissions on the Swedish stock market once again, especially since Alkebäck's (1997) results contradicted the theory.

The data sample is, in contrast to Michaely et al. (1995), based on Swedish listed companies instead of American, and the time frame is 1990 to 2015 instead of 1964 to 1988. However, the study is identical to the original one in terms of methodology in order to receive results that are directly comparable to theirs. Black and Scholes (1974) argue that a change in dividend policy could result in a change in a firm's shareholder clientele, due to different preferences for dividends. The similar arguments are discussed by Shefrin and Statman (1984), that state that one reason behind this behavior is taxes. Michaely et al. (1995) propose that this effect is also applicable to a situation where a dividend is initiated or omitted and the shareholder clientele subsequently shifts. The dividend tax rate in Sweden has historically changed and was during the period 1990 to 2015 different from the divi-

dend tax rate in the US (Holmen, Knopf and Peterson, 2008). This difference in tax rate may bring different reactions to dividend initiations and omissions, making it interesting to replicate the study using Swedish data. Randøy and Nielsen (2002) present that also Swedish corporate governance procedures and traditions differ from the US. Alkebäck (1997) emphasizes that one major difference is the solely presence of annual dividends in Sweden, compared to quarterly payments in the US, which may affect the market reactions. Another reason for conducting a replication is to investigate if the previous results of Michaely et al. (1995) are general and still valid (Reese, 1999).

This study contributes to the literature in several ways. Firstly, the study develops current insights on dividend initiations and omissions in a Swedish context and hopefully sheds some light on the contradiction between Alkebäck (1997) and other literature. Furthermore, Michaely et al. (1995) is one of the most important studies on the topic, without any distinct and more contemporary follow-up study. Hence, our study provides a more up-to-date view of the research area and complements Michaely et al. (1995). Finally, this study also develops the original one and bring some new insights to science, with regard to the extended research topic of reinitiations after dividend omissions.

III. Data and Methodology

The methodology used is in this study is as close as possible to the original study by Michaely et al. (1995) in order to avoid potential errors and receive results that are directly comparable. However, the study differs in two aspects:

- Our study is based on Swedish companies listed on Nasdaq Stockholm, in comparison to American companies listed on New York Stock Exchange (previously American Stock Exchange) in the original study.
- Our time period ranges from 1990 to 2015, compared to the time period 1964 to 1988 used by Michaely et al. (1995).

We initially collect all Swedish companies currently listed on Nasdaq Stockholm from *Datastream* and subsequently collect all dividend announcements from 1990 to 2015. Hence, as suggested by Michaely et al. (1995), we don't include foreign companies listed at Nasdaq Stockholm as depositary receipts. More specifically, the study focuses on companies listed on Large, Mid and Small Cap (or equivalents during the time period) on Nasdaq Stockholm, and does not include companies on other Swedish exchanges such as First North or Nordic Growth Market. We choose the time interval to match the length of Michaely et al. (1995), i.e. 25 years. Since we measure the three-year excess returns from the dividend announcement dates, we need to end our period at least three years prior to today. We strive to understand the markets of today, which stresses the importance of using current data and therefore we select the period to start in 1990.

a. Initiation Sample Selection

By following the criteria regarding time between IPO date and dividend announcement date used by the original

authors, we identify all dividend initiations during the determined time period. A dividend announcement is included in our initiation sample if the company has been traded on Nasdaq Stockholm for two years prior to the dividend initiation. The exclusion of dividend announcements occurring within two years from the IPO, as discussed by Michaely et al. (1995), eliminates companies that went public with a pre-announced intention to initiate a dividend payment. In order to cope with survivorship bias, we also need to include initiation events for delisted companies not covered in the initial collection from *Datastream*. All companies delisted from Nasdaq Stockholm are manually identified through The Swedish Tax Agency's public records of historical listings, and all dividend announcements for the delisted companies are collected from *Datastream* and included to the initial sample.

The data collected from *Datastream* is to some extent not complete since some values (e.g. stock prices for a few specific dates) are missing. The missing values are manually collected from Nasdaq Nordic's web-based database and added to the sample. The initiation sample, including both currently listed and delisted companies, contains 77 initiations events. Finally, we cross-check the initiation events with public information, such as press releases and annual reports, in order to limit potential errors and make sure that all information is correct.

b. Omission Sample Selection

Dividend omission events are identified from the same list of all dividend announcements from 1990 to 2015 collected from *Datastream* above. A dividend omission announcement is included in the sample if the company omitted the dividend after two consecutive annual dividend payments, in accordance with the definition by Michaely et al. (1995). Some companies are represented several times in the sample if they omitted a dividend several times (given that at least two annual dividends were paid out between the two omissions). We also add dividend omissions for delisted companies to the sample, in the same manner as for initiations based on public records from the Swedish Tax Agency. The omission sample, including both currently listed companies and delisted companies, contains 129 omission events. The omission sample is also cross-checked with public records, such as press releases and annual reports.

c. Selection of Benchmark Portfolio

To evaluate the excess returns for companies initiating or omitting dividends, both in the short term and in the long term, the specific stock performance must be compared to a benchmark portfolio. Michaely et al. (1995) mainly use the equally-weighted CRSP[1] index as benchmark. However, they also test the excess return against beta-adjusted, size-adjusted, and industry-adjusted benchmarks. The authors find that the results when using alternative benchmark portfolios are quantitatively similar to the results when using the equally-weighted index, and argue that an equally-weighted index is the best choice of benchmark portfolio, mainly due to its accessibility. However, we

[1] The Center for Research in Security Prices

can't identify any equally-weighted index of Nasdaq Stockholm and use the index OMXSPI as benchmark portfolio instead. OMXSPI is an all-share index that includes all shares listed on Nasdaq Stockholm, aiming to reflect the whole market (Nasdaq Group, Inc., 2020).

Some research shows that equally-weighted indices outperform indices weighted differently, such as indices based on market capitalization (Monnier and Rulik, 2011). This outperformance implies that our choice of benchmark portfolio could result in an underestimation of the market return compared to Michaely et al. (1995). However, we believe that this effect is minor without any considerable effect on our final results.

d. Calculation of Excess Return

As Michaely et al. (1995) do, we calculate the excess return from a buy-and-hold strategy. According to Loughran and Ritter (1995), that influenced Michaely et al. (1995) in the choice of methodology, the buy-and-hold strategy avoids potential errors due to frequent transactions. Michaely et al. (1995) define the excess return as "the geometrically compounded (buy-and-hold) return on the stock minus the geometrically compounded return on" one out of four alternative benchmark portfolios, as in Equation 1:

$$ER_{j(a\ to\ b)} = \prod_{t=a}^{b}(1+R_{jt}) - \prod_{t=a}^{b}(1+MR_t) \tag{1}$$

where $ER_{j(a\ to\ b)}$ is the excess return for firm j during the time period from time a to b, R_{jt} is the raw return for firm j on day t and MR_t is the return on the benchmark portfolio on day t. As an example, in the three-day event period the time period a to b is trading days t = –1, 0 and +1.

Average excess return for each period and sample is calculated as in Equation 2:

$$\overline{ER} = \frac{1}{N}\sum_{j=1}^{N} ER_j \tag{2}$$

e. Limitations in Data Sample

The collected sample consists of 77 initiation observations and 129 omission observations and could be considered relatively small. However, with regard to the central limit theorem, we assume that the samples are normally distributed and could be used in t-tests and regressions. Another potential problem is contaminated data since Swedish companies sometimes announce dividend changes at the same time as the year-end report[2], including earnings announcements, is released. Michaely et al. (1995) test this effect by comparing the excess returns from companies omitting dividends without contemporaneous earnings announcements to omitting companies with concurrent announcements. They find that the short-run excess returns are different, but the long-term responses are the same regardless of contemporaneous announcements. Hence, we assume that there are no effects from contemporaneous announcements on the long-term results, while there might be small effects on the short-run reactions. Furthermore, we do not believe we have any issue with

[2] *Bokslutskommuniké* (Sw.), a press release of unaudited earnings

survivorship bias since we complement our initial sample with delisted companies.

Michaley et al. (1995) also argue that their study does not face any large problem with overlapping (only 15 percent of observations overlap when calculating long-term excess returns). They refer to Bernard (1987), that concludes that the average correlation within industries when calculating one-year excess returns is about 30 percent (but only 6 percent across industries). Based on this research we believe that our data sample does not face any large issues regarding cross-correlation, neither. Another potential source of error may be event clustering, i.e. that the market now has corrected from previously large excess returns. If this is the case, possible previously large returns would impact the results. However, we find no substantial evidence that validates this potential pitfall.

f. Research Questions and Hypotheses

Earlier studies have been ambiguous and not pointing in a clear direction, as described above. Since our method of replication is close to the one used by Michaely et al. (1995), we expect results that are close to the results presented in their study. However, we do not know exactly how the possible differences between the US and Swedish markets will affect our study. We also expect that our choice of a later time interval will have some impact. Furthermore, there has been a successive increase in shareholder influence in Sweden from the 1990's and onwards, which has resulted in an increased focus on delivering dividends and increased the share of retained earnings that have been paid out to shareholders (Henreksson and Jakobsson, 2003). Due to the more aggressive focus on dividends, we imagine that the number of omissions and initiations may have increased. Henreksson and Jakobsson also mention the increased focus on the stock market in Sweden during the same time period, which may indicate smaller overreactions since investors are more informed. Based on current theory and previous literature, we formulate the following hypotheses for our three research questions:

Research question 1: How does the stock market react to dividend initiation and omission announcements, in the short term and the long term?

H_0: Excess returns are zero

H_1: Excess returns are separate from zero

Research question 2: Are the market responses to dividend initiations and dividend omissions symmetric and proportional to changes in dividend yield?

H_0: Excess returns for initiations and omissions are symmetric

H_1: Excess returns for initiations and omissions are asymmetric

H_0: Excess returns are not dependent on changes in dividend yield

H_1: Excess returns are dependent on changes in dividend yield

Research question 3: Are the long-term market responses for omitting firms dependent on the time until the dividend is reinitiated?

H_0: Excess returns for omitting firms are not dependent on the time until the dividend is reinitiated

H_1: Excess returns for omitting firms

are dependent on the time until the dividend is reinitiated

IV. Descriptive Statistics

Table 1 shows the distribution of omissions and initiations for the years 1990 to 2015, both in actual numbers and as a percentage of the sample. The sample size is 129 omissions and 77 initiations. Furthermore, there is a strong concentration in number of omissions to years following major economic downturns – the Swedish real estate crisis in 1990, the dot-com bubble in 2000, and the global financial crisis in 2008. More than one third of the omission announcements occur in the years following these three financial crises.

The table also contains data for the aggregate Swedish corporate profits (retrieved from Statistics Sweden) and OMXSPI annual returns. However, data over corporate profits for years before 1997 is not available. Due to the missing data, we calculate the correlation between the number of omissions/initiations and change in corporate profits during the years 1998 to 2015. The number of dividend initiations is negatively correlated with percentage changes in aggregate Swedish corporate profit ($\rho = -0.12$), contradicting our expectations based on Michaely et al. (1995). If we instead calculate the one-year lagging correlation between corporate profit changes and the number of dividend initiations, the result is positive ($\rho = +0.25$). The correlation between the number of dividend omissions and percentage changes in aggregate Swedish corporate profit is negative ($\rho = -0.25$), as well as the one-year lagging correlation ($\rho = -0.59$).

The following Table 2 provides a sector breakdown over initiations and omissions. The sector classification is based on Global Industry Classification Standard, a system used globally with eleven different sectors (S&P Global, 2018). All sectors in the system are found in Appendix A. The table also contains the maximum number of companies per sector that made a dividend initiation or omission that year. The maximum number of observations per sector is in Information Technology for initiations (18 observations) and in Industrials for omissions (37 observations). The number of sectors represented for both initiations and omissions is ten, where Utilities is the only sector without initiations or omissions for the period. We cannot note any overrepresentation of a certain sector in the sample.

Table 3 shows the distribution of observations based on share price. Firms initiating dividend payouts tend to have a lower share price than firms announcing omissions of dividend payouts. Few of the firms in the sample have a stock price higher than SEK 60.

Market capitalizations for initiating and omitting firms are presented in Table 4. However, for some firms market capitalization is not available.[3] Michaely et al. (1995) present the size of the firms in their sample in market capitalization deciles. Due to the lack of reliable information over market capitalizations for all firms listed on the

[3]Market capitalization for delisted companies is not available in *Datastream*. We calculate market capitalization for most missing values by multiplying the number of outstanding shares from the company's annual report with share price the day before the announcement, but some number of outstanding shares is not available neither (mainly for initiation and omission events in the 1990's).

Table 1: Distribution of Dividend Initiations and Omissions by Year, 1990–2015

The initiation sample includes all companies listed between 1990–2015 at Nasdaq Stockholm traded for at least two years before the first dividend announcement. The omission sample includes all companies listed between 1990–2015 at Nasdaq Stockholm that have paid out dividends for at least two consecutive years prior to the omission announcement. The annual change in corporate profits is retrieved from Statistics Sweden (SCB) and the index used is OMXSPI.

Year	Omissions	Omissions Percentage of Sample	Initiations	Initiations Percentage of Sample	Change in Corp. Profits (%)	Change in OMXSPI (%)
1990	0	0	1	1.3	n/a	–29.7
1991	0	0	9	11.7	n/a	5.4
1992	0	0	0	0	n/a	0.0
1993	11	8.5	0	0	n/a	52.1
1994	0	0	0	0	n/a	4.6
1995	1	0.8	2	2.6	n/a	18.3
1996	0	0	0	0	n/a	39.4
1997	4	3.1	1	1.3	n/a	27.0
1998	0	0	2	2.6	3.9	10.9
1999	1	0.8	1	1.3	1.3	66.5
2000	8	6.2	2	2.6	16.2	–12.0
2001	6	4.7	1	1.3	–23.7	–16.9
2002	11	8.5	0	0	1.3	–37.4
2003	9	7.0	4	5.2	22.6	29.8
2004	2	1.6	3	3.9	27.9	17.6
2005	0	0	2	2.6	15.7	32.6
2006	1	0.8	5	6.5	12.2	23.6
2007	4	3.1	7	9.1	12.7	–6.0

(*Table continues*)

Table 1 Continued: Distribution of Dividend Initiations and Omissions by Year, 1990–2015

Year	Omissions	Omissions Percentage of Sample	Initiations	Initiations Percentage of Sample	Change in Corp. Profits (%)	Change in OMXSPI (%)
2008	5	3.9	8	10.4	–12.1	–42.0
2009	24	18.6	9	11.7	–15.7	46.7
2010	9	7.0	4	5.2	40.2	23.1
2011	7	5.4	7	9.1	–3.6	–16.7
2012	6	4.7	3	3.9	–7.6	12.0
2013	8	6.2	1	1.3	–7.3	23.2
2014	10	7.8	2	2.6	13.7	11.9
2015	2	1.6	3	3.9	7.6	6.6
Totals	129	100.0	77	100.0		

Table 2: Sector Representation of Dividend Initiations and Omissions by Year, 1990–2015

The table shows the number of initiations and omissions per year, the number of sectors represented and the maximum amount of initiations and omissions in one GICS sector, presented for the sample period 1990–2015.

Year	Omissions	Sectors Represented (GICS)	Maximum in Any One Sector	Initiations	Sectors Represented (GICS)	Maximum in Any One Sector
1990	0	0	0	1	1	1
1991	0	0	0	9	4	6
1992	0	0	0	0	0	0
1993	11	5	6	0	0	0
1994	0	0	0	0	0	0

(*Table continues*)

Table 2 Continued: Sector Representation of Dividend Initiations and Omissions by Year, 1990–2015

Year	Omissions	Sectors Represented (GICS)	Maximum in Any One Sector	Initiations	Sectors Represented (GICS)	Maximum in Any One Sector
1995	1	1	1	2	2	1
1996	0	0	0	0	0	0
1997	4	3	2	1	1	1
1998	0	0	0	2	2	1
1999	1	1	1	1	1	1
2000	8	5	3	2	2	1
2001	6	4	3	1	1	1
2002	11	6	4	0	0	0
2003	9	5	3	4	4	1
2004	2	1	2	3	3	1
2005	0	0	0	2	1	2
2006	1	1	1	5	5	1
2007	4	3	2	7	5	3
2008	5	3	2	8	5	3
2009	24	7	7	9	3	4
2010	9	4	6	4	4	1
2011	7	4	2	7	4	2
2012	6	5	2	3	3	1
2013	8	6	3	1	1	1
2014	10	4	5	2	2	1
2015	2	2	1	3	3	1

Table 3: Stock Price Per Share of Initiating and Omitting Firms, Day Before the Announcement (SEK)

The table provides data over the stock price the day before the dividend announcement. The data is presented in selected intervals and also complemented with the percentage share of each interval.

Price (SEK)	<5	5–10	10–15	15–20	20–30	30–40	40–60	>60	Totals
Initiations	11	15	14	3	6	5	12	11	77
Initiations (%)	14.3	19.5	18.2	3.9	7.8	6.5	15.6	14.3	100.0
Omissions	12	16	19	15	15	17	12	23	129
Omissions (%)	9.3	12.4	14.7	11.6	11.6	13.2	9.3	17.8	100.0

Table 4: Market Capitalization for Initiating and Omitting Firms, Day Before the Announcement (SEK)

The table presents information over market capitalization the day before the announcement. Percentage shares for each interval are also included. The lowest interval is for firms with a market capitalization smaller than SEK 100m and the highest is for firms with a market capitalization larger than SEK 2,000m.

Market Cap. (SEK)	<100m	100m–200m	200m–400m	400m–600m	600m–1,000m	1,000m–2,000m	>2,000m	n/a	Totals
Initiations	7	9	10	11	9	14	9	8	77
Initiations (%)	9.1	11.7	13.0	14.3	11.7	18.2	11.7	14.0	100.0
Omissions	11	22	16	14	19	15	26	6	129
Omissions (%)	8.5	17.1	12.4	10.9	14.7	11.6	20.2	4.7	100.0

exchange each year, we present market capitalizations in absolute numbers. Comparing market capitalization for a firm in 1990 to a firm in 2015 in absolute terms may cause some errors, but we believe these are minor. Omitting firms seem to be slightly larger than initiating firms, but the difference is not substantial.

V. Empirical Results

We calculate excess returns for all firms in both samples for a time period before the announcement event, a short-term reaction around the event, and a long-term response afterwards. Furthermore, we run regressions to test if excess returns for initiating and omitting firms are asymmetric and dependent on changes in dividend yield. Subsequently, we also test whether the excess returns for omitting firms are dependent on the time until the dividends are reinitiated again.

a. Short-Run Reactions

In line with theory, the average performance of the stocks that initiate dividends is significantly better than the benchmark portfolio in the year before initiation, as presented in Table 5. The excess return of this portfolio is +16.4 percent and is significant at the 5 percent level. The three-day announcement period entailed an additional excess return of +1.5 percent and is significant at the 10 percent level. Firms omitting dividends perform poorly in the year before declaring a dividend omission. During this time period, the average return for the sample is –28.9 percent, significant at the 1 percent level. As with the initiation sample, the reaction to the omission announcement follows the same direction as the price movement in the period before the announcement – omitting firms experience an additional excess return of –2.4 percent in the three days around the announcement. This result is significant at the 5 percent level. The average dividend yield for initiating firms is 12.0 percent using current stock prices and 12.0 percent using one year old stock prices. For omitting firms, the dividend yield is 15.1 and 8.5 percent using current and one year old prices, respectively.

The excess returns for both initiations and omissions during the year before the announcement are in the same magnitude as in Michaely et al. (1995). Returns during the event window seem to be smaller in our study compared to the original study. However, the proportion between initiation and omission returns is similar, where the reaction to omissions (in absolute terms) is almost twice the size of the reaction to dividend initiations. This potential asymmetric effect is of interest to investigate further, something we test with regressions in another section below.

b. Long-Run Reactions

From the long-run price development, presented in Table 6, we can distinguish that omissions have significantly positive results that are contrary to theory. It is expected that companies omitting dividends have negative excess returns, but we receive large positive results for all horizons with the three-year period showing a positive excess return of +44.3 percent. For the shorter periods, the three-month horizon also yields a +18.2 percent excess return, and returns for one and two years after the

Table 5: Excess Returns for Initiating and Omitting Firms for Periods Before and At Announcement, Relative to Announcement Date (%)

Excess returns for initiating and omitting firms for one year and three months prior to the three day event period as well as the period centered around the announcement day. The excess returns are calculated as follows:

$$ER_{j(a\ to\ b)} = \prod_{t=a}^{b}(1 + R_{jt}) - \prod_{t=a}^{b}(1 + MR_t)$$

where $ER_{j(a\ to\ b)}$ is the excess return for firm j during the period from a to b, R_{jt} is the raw return for firm j on day t and MR_t is the return for the benchmark portfolio on day t. Dividend yield is calculated by dividing the annualized dividend with the stock price the day before the announcement date, as well as dividing it with the stock price one year before the announcement date (the latter one reported in parentheses). t-statistics are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively.

		From Year –1 to Day –2	From Month –3 to Day –2	From Day –1 to Day +1	Dividend Yield (%)
Initiations	$n = 77$	16.4**	7.6**	1.5*	12.0 (12.0)
		(2.22)	(2.51)	(1.93)	
Omissions	$n = 129$	–28.9***	2.3	–2.4**	8.5 (15.1)
		(–5.83)	(0.65)	(–2.26)	

announcement are +22.2 and +33.4 percent, respectively. All findings for omissions are, at least, significant at the 5 percent level. For initiation announcements, the long-run results show positive excess returns. In a three year horizon, the positive excess return is +27.6 percent. However, none of the findings for initiations are significant at the 5 percent level and we fail to reject the null hypothesis for the initiation sample.

These results are contrary to the results presented by Michaely et al. (1995) and prior research. The returns after omission announcements seem to be higher than returns following a dividend initiation, which is astonishing. However, one cannot make any clear conclusions due to the initiation returns' statistical insignificance. For the omission sample, one possible explanation for this contradicting result is the fact that the omission observations are relatively concentrated to economic downturns. Hence, it is out of interest to further investigate whether these omissions were permanent or temporary (and reinitiated again during the year(s) after omission). We test this question in another section below.

c. Symmetry in Market Reactions

Michaely et al. (1995) initially argue, with reference to previous literature, that a dividend omission conveys more information than an initiation. In order to study the potential asymmetry in reactions to dividend initiations and omissions, we run a number of regressions of the excess returns to the percentage changes in dividend yield to check if these reactions are of a similar magnitude. Like Michaely et al. (1995) we use two different measures of dividend yield,

Table 6: Excess Returns for Initiating and Omitting Firms for Periods At and After Announcement, Relative to Announcement Date (%)

Excess returns for initiating and omitting firms for the period centered around the announcement day as well as three-month, one-year, two-year and three-year periods starting two days after the announcement. The excess returns are calculated as follows:

$$ER_{j(a\ to\ b)} = \prod_{t=a}^{b}(1 + R_{jt}) - \prod_{t=a}^{b}(1 + MR_t)$$

where $ER_{j(a\ to\ b)}$ is the excess return for firm j during the period from a to b, R_{jt} is the raw return for firm j on day t and MR_t is the return for the benchmark portfolio on day t. t-statistics are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively.

		From Day –1 to Day +1	From Day +2 to Month +2	From Day +2 to Year +1	From Day +2 to Year +2	From Day +2 to Year +3
Initiations	$n = 77$	1.5*	0.3	0.6	15.1	27.6*
		(1.93)	(0.14)	(0.11)	(0.86)	(1.69)
Omissions	$n = 129$	–2.4**	18.2**	22.2***	33.4***	44.3***
		(–2.26)	(2.17)	(3.36)	(2.98)	(2.73)

one using the last stock price (day before announcement) and one using the stock price one year ago. The complementary usage of the one year old price is especially important in our case were the omission sample is concentrated to economic downturns, and it is hence appropriate to assume that the price have dropped during the year before announcement (as indicated in our initial statistical tests), making the dividend yield overestimated. Equation 3 shows our regression:

$$\begin{aligned} ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \left(\frac{D}{P}\right)_i \times M_i \\ + \alpha_3 Q_i \left(\frac{D}{P}\right)_i \times M_i + \varepsilon_i \\ \text{for } i = 1 \text{ to } N \end{aligned} \tag{3}$$

where ER_i is the three-day announcement period excess return for firm i, $M_i = -1$ for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price). We also run regressions using winsorized data (at the 1 percent level) and with grouped data, to handle potential problems due to outliers. For the grouped data, we divide each sample into ten groups (ranked on dividend yield change) and turn each decile into a new mean observation.

In the short-run price reaction regression, presented in Table 7, the intercept dummy is positive (however, only significant at the 5 percent level when using grouped data and one year old prices) which indicates that the reaction to dividend omissions is larger. The slope dummy, significant at the 5 percent level regardless of method (except from winsorized data using current prices), is positive and indicates that a unit change in dividend yield also has a larger effect on price reactions to omissions than to

Table 7: Dividend Yield Changes as A Determinant of the Short-Run Price Reaction During the Initiation and Omission Announcement Period (One Day Before to One Day After)

Multivariate linear regression of the relationship between the three-day event period market reaction to dividend initiation and omission announcements and the dividend yield change, using the equation

$$ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \left(\frac{D}{P}\right)_i \times M_i + \alpha_3 Q_i \left(\frac{D}{P}\right)_i \times M_i + \varepsilon_i \text{ for } i = 1 \text{ to } N$$

where ER_i is the three-day announcement period excess return for firm i, M_i = –1 for dividend omissions and 1 for dividend initiations, Q_i = 1 for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price on the day before announcement for Panels A, C and E or one year before the announcement for Panels B, D and F). To minimize the effect from potential outliers, data for regressions in Panels C and D are winsorized at the 1% level and data for regressions in Panels E and F are grouped into initiation and omission deciles based on dividend yield. F-statistics tests if both the intercept dummy and the slope dummy are significantly different from zero. t-statistics for every separate coefficient are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively. Robust standard errors are used.

Intercept α_0	Intercept Dummy $\alpha_1 Q_i$	Yield Coefficient α_2	Slope Dummy Coefficient α_3	F-test (probability)	R^2	N
Panel A: Yield D/P$_{t-1}$						
0.015*	0.022	–0.000	0.090***	3.07	0.03	206
(1.79)	(1.53)	(–0.04)	(2.95)	(0.03)		
Panel B: Yield D/P$_{t-365}$						
0.015*	0.030*	0.003	0.242***	3.52	0.06	206
(1.73)	(1.94)	(0.31)	(3.16)	(0.02)		
Panel C: Yield D/P$_{t-1}$, Winsorized Data at 1% Level						
0.015	0.024	–0.002	0.106*	2.85	0.04	206
(1.53)	(1.52)	(–0.04)	(1.91)	(0.04)		
Panel D: Yield D/P$_{t-365}$, Winsorized Data at 1% Level						
0.014	0.032*	0.014	0.246***	3.05	0.05	206
(1.47)	(1.94)	(0.37)	(2.59)	(0.03)		
Panel E: Yield D/P$_{t-1}$, Grouped Data						
0.017	0.022	–0.020	0.122***	27.11	0.34	20
(1.38)	(1.54)	(–0.98)	(5.19)	(0.00)		
Panel F: Yield D/P$_{t-365}$, Grouped Data						
0.015*	0.030**	0.004	0.244***	31.97	0.47	20
(1.77)	(2.17)	(0.33)	(6.11)	(0.00)		

initiations. This result is opposite to the one in Michaely et al. (1995), which find that a unit change in dividend yield in fact have a larger effect on prices for initiations rather than omissions. The contradiction is something interesting to examine and discuss further below. From our results, we cannot significantly conclude that the general reaction to a dividend initiation or omission is dependent on the dividend yield change (yield coefficient is close to zero and insignificant), but we can conclude that the reaction to dividend omissions is larger than the reaction to dividend initiations (the intercept dummy and the slope dummy are positive).

The main difference from Michaely et al. (1995), the positive slope dummy coefficient, is interesting to investigate further. May this pattern be more distinct and stronger during certain years or time periods or for certain sectors? In order to examine the first question we run the above regression again, but instead divide the slope dummy variable into several dummy variables (one for each year), as in Equation 4:

$$\begin{aligned} ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \Big(\frac{D}{P}\Big)_i \times M_i \\ + \alpha_3 Q_i \Big(\frac{D}{P}\Big)_i \times M_i \times Y_i^{1990} \\ + \ldots + \alpha_{28} Q_i \Big(\frac{D}{P}\Big)_i \\ \times M_i \times Y_i^{2015} + \varepsilon_i \\ \text{for } i = 1 \text{ to } N \end{aligned} \tag{4}$$

where ER_i is the three-day announcement period excess return for firm i, M_i = –1 for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price). Y_i^{1990} = 1 if the announcement from firm i occurs in year 1990 and otherwise 0, Y_i^{1991} = 1 if the announcement from firm i occurs in year 1991 and otherwise 0, etc.

Table 8 presents the regression in which the slope dummy is divided into one variable for each year. Some slope dummies are omitted and no coefficients presented, due to no observed omissions for those particular years. For the period 1990–1998 we do only have observations for a few years but can note that two of these years (1993 and 1995) have significantly positive slope dummies that are larger than the overall slope dummy in the regression in Table 7, indicating that the information content of an omission announcement was larger during these years compared to the whole period. In the years prior to the turn of the millennium the slope dummies are instead negative (significant in 1999), followed by insignificant coefficients the years afterward. During the years before the financial crisis (2004–2007) the coefficients are significantly positive for two years. During the financial crisis, the slope dummies are significantly positive. In 2008 that coefficient is larger than the overall regression in Table 7, and in 2009 in line with the previous regression. The years afterward we only receive significant results for 2012 using one year old prices. We do not find any overall pattern and are not able to draw any general conclusions regarding the development of the magnitude of reactions to omissions during the period 1990–2015.

We do also run the regression testing for differences between sectors, by dividing the slope dummy into several slope dummy variables (one for each sector), as in Equation 5:

Table 8: Dividend Yield Changes as A Determinant of the Short-Run Price Reaction During the Initiation and Omission Announcement Period (One Day Before to One Day After), One Slope Dummy for Each Year

Multivariate linear regression of the relationship between the three-day event period market reaction to dividend initiation and omission announcements and the dividend yield change, using the equation

$$ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \left(\frac{D}{P}\right)_i \times M_i + \alpha_3 Q_i \left(\frac{D}{P}\right)_i \times M_i \times Y_i^{1990} + \ldots + \alpha_{28} Q_i \left(\frac{D}{P}\right)_i \times M_i \times Y_i^{2015} + \varepsilon_i \text{ for } i = 1 \text{ to } N$$

where ER_i is the three-day announcement period excess return for firm i, $M_i = -1$ for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price on the day before the announcement for Panel A and one year before the announcement for Panel B). $Y_i^{1990} = 1$ if the announcement from firm i occurs in year 1990 and otherwise 0, $Y_i^{1991} = 1$ if the announcement from firm i occurs in year 1991 and otherwise 0, etc. F-statistics tests if both the intercept dummy and the slope dummy are significantly different from zero. t-statistics for every separate coefficient are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively. Robust standard errors are used.

	Panel A: Yield D/P$_{t-1}$		Panel B: Yield D/P$_{t-365}$	
Intercept α_0	0.015*	(1.71)	0.015*	(1.65)
Intercept Dummy $\alpha_1 Q_i$	0.027	(1.52)	0.037*	(1.84)
Yield Coefficient α_2	–0.000	(–0.04)	0.003	(0.30)
Slope Dummy Coefficient (1990) α_3	n/a		n/a	
Slope Dummy Coefficient (1991) α_4	n/a		n/a	
Slope Dummy Coefficient (1992) α_5	n/a		n/a	
Slope Dummy Coefficient (1993) α_6	0.165***	(2.69)	0.315***	(3.52)
Slope Dummy Coefficient (1994) α_7	n/a		n/a	
Slope Dummy Coefficient (1995) α_8	0.403***	(3.27)	1.581***	(3.34)
Slope Dummy Coefficient (1996) α_9	n/a		n/a	
Slope Dummy Coefficient (1997) α_{10}	0.088	(1.39)	0.071	(0.64)
Slope Dummy Coefficient (1998) α_{11}	n/a		n/a	
Slope Dummy Coefficient (1999) α_{12}	–0.291***	(–3.15)	–0.478**	(–2.20)

(*Table continues*)

Table 8 Continued: Dividend Yield Changes as A Determinant of the Short-Run Price Reaction During the Initiation and Omission Announcement Period (One Day Before to One Day After), One Slope Dummy for Each Year

	Panel A: Yield D/P_{t-1}		Panel B: Yield D/P_{t-365}	
Slope Dummy Coefficient (2000) α_{13}	–0.105	(–0.30)	–0.090	(–0.21)
Slope Dummy Coefficient (2001) α_{14}	0.028	(1.54)	0.152*	(1.82)
Slope Dummy Coefficient (2002) α_{15}	0.195	(1.16)	0.362	(1.07)
Slope Dummy Coefficient (2003) α_{16}	–0.122	(–0.58)	0.214	(0.66)
Slope Dummy Coefficient (2004) α_{17}	2.722***	(4.18)	2.942***	(4.00)
Slope Dummy Coefficient (2005) α_{18}	n/a		n/a	
Slope Dummy Coefficient (2006) α_{19}	17.452*	(1.94)	21.195**	(2.20)
Slope Dummy Coefficient (2007) α_{20}	–0.050	(–0.59)	–0.068	(–0.34)
Slope Dummy Coefficient (2008) α_{21}	0.156**	(2.21)	0.415**	(2.04)
Slope Dummy Coefficient (2009) α_{22}	0.074**	(2.26)	0.257	(1.25)
Slope Dummy Coefficient (2010) α_{23}	0.089	(0.26)	0.256	(0.78)
Slope Dummy Coefficient (2011) α_{24}	–0.211	(–0.42)	0.121	(0.26)
Slope Dummy Coefficient (2012) α_{25}	0.653	(1.33)	0.875**	(2.00)
Slope Dummy Coefficient (2013) α_{26}	1.231	(1.54)	2.183*	(1.96)
Slope Dummy Coefficient (2014) α_{27}	0.097	(0.17)	0.226	(0.36)
Slope Dummy Coefficient (2015) α_{28}	0.018	(0.53)	0.032	(0.87)
R^2	0.09		0.11	
N	206		206	

Table 9: Dividend Yield Changes as A Determinant of the Short-Run Price Reaction During the Initiation and Omission Announcement Period (One Day Before to One Day After), One Slope Dummy for Each Sector

Multivariate linear regression of the relationship between the three-day event period market reaction to dividend initiation and omission announcements and the dividend yield change, using the equation

$$ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \left(\frac{D}{P}\right)_i \times M_i + \alpha_3 Q_i \left(\frac{D}{P}\right)_i \times M_i \times S_i^1 + \ldots + \alpha_{13} Q_i \left(\frac{D}{P}\right)_i \times M_i \times S_i^{11} + \varepsilon_i \text{ for } i = 1 \text{ to } N$$

where ER_i is the three-day announcement period excess return for firm i, $M_i = -1$ for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price on the day before the announcement for Panel A and one year before the announcement for Panel B). $S_i^1 = 1$ if firm i belongs to sector 1 (Communication Services) and otherwise 0, $S_i^2 = 1$ if firm i belongs to sector 2 (Consumer Discretionary) and otherwise 0, etc. A list of all index numbers and sectors is presented in Appendix A. F-statistics tests if both the intercept dummy and the slope dummy are significantly different from zero. t-statistics for every separate coefficient are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively. Robust standard errors are used.

	Panel A: Yield D/P$_{t-1}$		Panel B: Yield D/P$_{t-365}$	
Intercept α_0	0.015*	(1.75)	0.015*	(1.69)
Intercept Dummy $\alpha_1 Q_i$	0.018	(1.07)	0.022	(1.28)
Yield Coefficient α_2	–0.000	(–0.04)	0.003	(0.31)
Slope Dummy Coefficient (Communication Services) α_3	–2.002***	(–9.53)	–6.473***	(–5.85)
Slope Dummy Coefficient (Consumer Discretionary) α_4	0.047**	(2.47)	0.098	(1.51)
Slope Dummy Coefficient (Consumer Staples) α_5	0.587	(1.23)	1.103	(1.28)
Slope Dummy Coefficient (Energy) α_6	–0.719	(–1.11)	–0.753	(–1.33)
Slope Dummy Coefficient (Financials) α_7	0.131**	(2.14)	0.264***	(5.66)
Slope Dummy Coefficient (Health Care) α_8	0.149	(1.31)	0.297	(1.25)
Slope Dummy Coefficient (Industrials) α_9	0.047	(1.07)	0.151	(1.54)
Slope Dummy Coefficient (Information Technology) α_{10}	–0.073	(–0.54)	–0.098	(–0.52)
Slope Dummy Coefficient (Materials) α_{11}	–0.060	(–0.36)	0.012	(0.04)

(*Table continues*)

Table 9 Continued: Dividend Yield Changes as A Determinant of the Short-Run Price Reaction During the Initiation and Omission Announcement Period (One Day Before to One Day After), One Slope Dummy for Each Sector

	Panel A: Yield D/P_{t-1}		Panel B: Yield D/P_{t-365}	
Slope Dummy Coefficient (Real Estate) α_{12}	0.536***	(21.08)	0.710***	(19.20)
Slope Dummy Coefficient (Utilities) α_{13}	n/a		n/a	
R^2	0.11		0.12	
N	206		206	

$$
\begin{aligned}
ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \Big(\frac{D}{P}\Big)_i \times M_i \\
+ \alpha_3 Q_i \Big(\frac{D}{P}\Big)_i \times M_i \times S_i^1 \\
+ \ldots + \alpha_{13} Q_i \Big(\frac{D}{P}\Big)_i \\
\times M_i \times S_i^{11} + \varepsilon_i \\
\text{for } i = 1 \text{ to } N
\end{aligned}
\tag{5}
$$

where ER_i is the three-day announcement period excess return for firm i, M_i = –1 for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price). $S_i^1 = 1$ if firm i belongs to sector 1 (Communication Services) and otherwise 0, $S_i^2 = 1$ if firm i belongs to sector 2 (Consumer Discretionary) and otherwise 0, etc. A list of all index numbers and sectors is presented in Appendix A.

Table 9 presents the regression in which the slope dummy is divided into one variable for each sector. One slope dummy (for Utilities) is omitted and no coefficient presented, due to no observed omissions for that particular sector. Some results are statistically significant. The slope dummy coefficient for Communication Services is significantly negative. Put in other words, a one unit change in dividend yield for Communication Services omissions has a negative effect on the magnitude of the stock market reaction. The negative relation becomes even more apparent when using one year old prices. In addition, three other sectors in this sample generate significantly larger reactions to omissions than to initiations when looking at the prior day's price (Consumer Discretionary, Real Estate, and Financials). The same holds for Real Estate and Financials when using one year old prices. A one unit change in dividend yield in the sectors Real Estate and Financials results in a larger effect on excess return, compared to the average effect for the whole sample determined in the regression in Table 7.

Michaely et al. (1995) also run regressions testing the long-run responses, without any significant results. The same applies to our regression in Table 10, using the three-year excess return after the announcement instead of the announcement period excess return, with regard to the intercept dummy. We cannot conclude that the general reaction to dividend omissions are significantly different from initiations in the long run. However, we receive statistically significant results for the slope dummy (except when using winsorized data), indicating that the change in dividend yield has a larger effect on the reaction to dividend omissions than to dividend initiations also in the long term.

There are a number of potential sources of errors in the findings presented above. We need to examine whether the Multiple Linear Regression (MLR) assumptions are satisfied in order to determine the validity of our results. First, we need to discuss if the fourth MLR assumption, the zero conditional mean, is satisfied. Problems with this criterion generally arise from omitted variables. The model we use is similar to the model used by Michaely et al. (1995), which is proven to be exhaustive and well in line with theory. Hence, there should be no omitted variables issue in our regression. Another assumption to be validated is whether the variance for all values of the explanatory variables is equal. We use the Breusch-Pagan test for finding potential heteroscedasticity. Our test reveals that

Table 10: Dividend Yield Changes as A Determinant of the Long-Run Price Response After the Initiation and Omission Announcement (One Day After to Three Years After)

Multivariate linear regression of the relationship between the three-year market response following dividend initiation and omission announcements and the dividend yield change, using the equation

$$ER_i \times M_i = \alpha_0 + \alpha_1 Q_i + \alpha_2 \left(\frac{D}{P}\right)_i \times M_i + \alpha_3 Q_i \left(\frac{D}{P}\right)_i \times M_i + \varepsilon_i \text{ for } i = 1 \text{ to } N$$

where ER_i is the three-year excess return for firm i, $M_i = -1$ for dividend omissions and 1 for dividend initiations, $Q_i = 1$ for dividend omissions and 0 for dividend initiations, and $(\frac{D}{P})_i$ is the dividend yield (annualized dividend divided with price on the day before announcement for Panels A, C and E or one year before the announcement for Panels B, D and F). To minimize the effect from potential outliers, data for regressions in Panels C and D are winsorized at the 1% level and data for regressions in Panels E and F are grouped into initiation and omission deciles based on dividend yield. F-statistics tests if both the intercept dummy and the slope dummy are significantly different from zero. t-statistics for every separate coefficient are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively. Robust standard errors are used.

Intercept α_0	Intercept Dummy $\alpha_1 Q_i$	Yield Coefficient α_2	Slope Dummy Coefficient α_3	F-test (probability)	R^2	N
Panel A: Yield D/P$_{t-1}$						
0.253	–0.327	0.186	2.252***	6.25	0.13	206
(1.52)	(–1.54)	(0.57)	(3.14)	(0.00)		
Panel B: Yield D/P$_{t-365}$						
0.214	–0.180	0.513	5.074**	4.29	0.14	206
(1.32)	(–0.77)	(1.04)	(2.20)	(0.01)		
Panel C: Yield D/P$_{t-1}$, Winsorized Data at 1% Level						
0.121	–0.177	1.956	0.696	4.94	0.13	206
(0.73)	(–0.82)	(1.46)	(0.43)	(0.00)		
Panel D: Yield D/P$_{t-365}$, Winsorized Data at 1% Level						
0.080	0.007	2.216*	4.119	4.80	0.16	206
(0.49)	(0.03)	(1.69)	(1.53)	(0.00)		
Panel E: Yield D/P$_{t-1}$, Grouped Data						
0.243	–0.106	0.240	3.579***	184.85	0.77	20
(1.32)	(–0.50)	(0.64)	(8.58)	(0.00)		
Panel F: Yield D/P$_{t-365}$, Grouped Data						
0.162	–0.057	0.932**	5.457***	67.85	0.76	20
(1.00)	(–0.28)	(2.69)	(8.67)	(0.00)		

we could reject the null hypothesis of homoscedasticity and thus likely deal with heteroscedasticity in our sample. In most cases, heteroscedasticity arises from misspecified models. However, our model is constructed in line with the model used in Michaely et al. (1995) and we believe that the model is well specified. We also believe that the fact that we use robust standard errors in our regressions decreases potential effects from heteroscedasticity.

d. Reinitiation of Omitted Dividends

Since our results indicate significant long-term positive excess returns for omitting firms, contrary to theory, it is of interest to investigate this phenomenon further. There could, of course, be several reasons these results contradicted the results in Michaely et al. (1995). However, one potential reason could be that the dividends were reinitiated again shortly after the dividend omission. One factor that strengthens this hypothesis is the fact that our omission sample is relatively concentrated to three economic downturns, where one could assume that the dividend is only temporarily omitted. Descriptive statistics in Table 11 show that this is to some extent the actuality since over 40 percent of the omissions were reinitiated again within two years. Approximately 20 percent of the omissions have not been reinitiated up until today.

In order to test if there is any underlying relationship between this initial statistics and the excess return, we run a regression using the Equation 6:

$$ER_i = \alpha_0 + \alpha_1 Y_i + \varepsilon_i \text{ for } i = 1 \text{ to } N \tag{6}$$

where ER_i is the three-year post-announcement excess return for omitting firm i and Y_i is the time (in years) until the omitted dividend is reinitiated. We run two regressions using two slightly different datasets. The first regression uses default data. However, for firms that never reinitiated the dividend until today, we use the time between the omission announcement date and today's date (April 21st, 2020). However, one can argue about the inappropriateness in testing if the three-year excess return is dependent on things that happened after the three-year period (dividend reinitiated after a time period longer than three years). Hence, we run a second regression using modified data in which all reinitiation time periods longer than three years are normalized to exactly three years (including those firms that never reinitiated the dividend). Figures 1 and 2 present an overview of the samples.

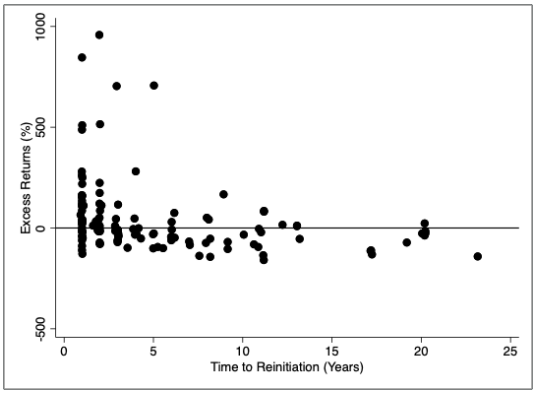
The results are presented in Table 12,

Table 11: Time In Years Until Reinitiation of Omitted Dividend

The time (in number of years) until an omitted dividend is reinitiated, presented in selected one-year intervals. Furthermore, the percentage share of each interval is presented.

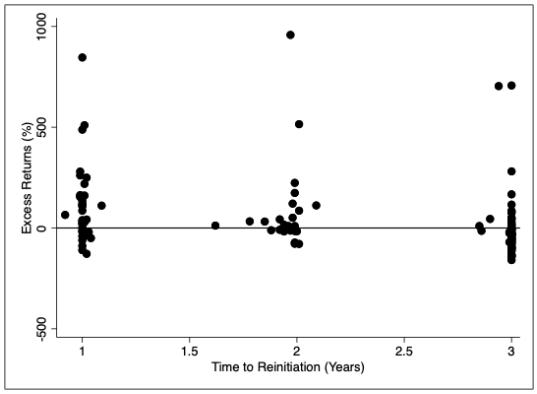
Years	≤1	1–2	2–3	3–4	4–5	5–6	6–7	>7	Never	Totals
Count	22	35	13	9	6	4	2	10	28	129
%	17.1	27.1	10.1	7.0	4.7	3.1	1.6	7.8	21.7	100.0

Figure 1: Scatter Plot Over Three-Year Excess Return as A Function of Time Until Reinitiation, Default Data



The diagram shows a scatter plot with three-year excess returns after omissions announcements on the y axis and time until reinitations on the x axis, using default data.

Figure 2: Scatter Plot Over Three-Year Excess Return as A Function of Time Until Reinitiation, Normalized Data



The diagram shows a scatter plot with three-year excess returns after omissions announcements on the y axis and time until reinitations on the x axis, where all time periods longer than 3 years are normalized to exactly 3 years.

and both regressions show significant results on the 1 percent level with a negative relationship between excess return and time until reinitiation. When using default data, the slope coefficient is negative, indicating that for each year the dividend is omitted the three-year post-announcement excess return is 10.3 percent lower. The same applies to the regression using normalized data, where the magnitude of the result is even larger (66.1 percent lower for each year). Based on these regressions, we can conclude that the shorter time until the omitted dividend is reinitiated the larger the three-year excess return is.

The findings when examining symmetry and time to reinitiations are of great importance to enhance our understanding of stock market reaction to dividend announcements. We will now explain the implications of our finding and their role in building an understanding of the market reactions and how they relate to other theories.

VI. Interpretations and Conclusions

The short-run reactions show that omissions yield significantly excess returns, but that the null hypothesis regarding excess returns for initiations can only be rejected at the 10 percent level. The reactions, and more important the signs of the reactions, are in line with prior theory. However, our excess returns are smaller in size than in Michaely et al. (1995). The result is indeed in line with the results in Alkebäck (1997), which also contradicted Michaely et al. (1995) by finding smaller reactions for initiations and omissions compared to ordinary dividend increases and decreases. Hence, our results to some extent confirm the findings in this previous Swedish study. The Swedish stock market seems to react to dividend initiation and omission announcements in same direction as in the US, but of a smaller

Table 12: Time In Years Until Reinitiation of An Omitted Dividend as a Determinant of the Long-Run Price Response After the Omission Announcement (One Day After to Three Years After)

Linear regression of the relationship between the three-year post-announcement market reaction to dividend omission announcements and the time in years until the dividend is reinitiated, using the equation

$$ER_i = \alpha_0 + \alpha_1 Y_i + \varepsilon_i \text{ for } i = 1 \text{ to } N$$

where ER_i is the three-year post-announcement excess return for omitting firm i and Y_i is the time (in years) until the omitted dividend is reinitiated. The regression in Panel A is based on default data, while the regression in Panel B is based on normalized data in which all reinitiation time periods longer than three years are normalized to three years. F-statistics tests if both the intercept coefficient and time coefficient are significantly different from zero. t-statistics for every separate coefficient are reported in parentheses. Significance levels of 1, 5, and 10 percent are reported with ***, **, and *, respectively. Robust standard errors are used.

Intercept α_0	Time Coefficient α_1	F-test (probability)	R^2	N
Panel A: Default Data				
0.970***	–0.103***	26.86	0.09	129
(4.17)	(–5.18)	(0.00)		
Panel B: Normalized Data				
1.915***	–0.661***	14.36	0.10	129
(4.22)	(–3.79)	(0.00)		

magnitude.

For the long-run price development, we fail to acknowledge any excess return for initiations and cannot reject the null hypothesis. It is difficult to determine the reason behind this insignificance. For example, we do not find any indications of distortions or concentration in the data sample that could explain the results. More interesting is the long-term price development for dividend omissions, that face large and significantly positive excess returns. No such relationship can be found in Michaely et al. (1995) or other studies. Due to this contradiction, we investigate the omission sample further by regressing the relationship between long-term returns and time until reinitiations, and find that the relationship is significantly negative. A shorter time to reinitiation results in a higher three-year excess return. The fact that our omission sample is concentrated to economic downturns (and a majority of the omissions reinitiated again within a couple of years), could explain these contrary findings. Michaely et al. (1995) have a more diverse omission sample where the observations are relatively uniformly divided among the years. Our findings regarding reinitiations contribute to the literature and provide some useful insights for the valuation process of a stock following a dividend omission.

The symmetry in market reactions for a short-run period shows that a unit change in dividend yield has a larger impact on reactions to omissions compared to reactions to initiations, which contradicts the results in Michaely et al. (1995). Furthermore, we also run

regressions testing if this pattern is specific for certain sectors or years, and find that the effect is stronger within the sectors Real Estate and Financials. For Communication Services, the relationship is instead negative. Interesting is that these results are consistent with prior research on industry-specific preferences for dividend yield in stock valuation. Barker (1999) finds strong evidence that analysts prefer to use dividend yield when valuing financial companies. On the other hand, the price to earnings ratio is preferred over dividend yield for sectors such as services and consumer goods, which could explain the smaller reaction for Communication Services. We do not find any clear patterns or differences between certain time periods. The sector-specific findings contribute to the literature and complement Michaely et al. (1995).

Based on our results we can also conclude that the overall reaction to dividend omissions is of a larger magnitude than the reaction to dividend initiations. The same pattern, with larger reactions to dividend omissions than to initiations for each unit change in dividend yield, applies also for the long-term development (except when using winsorized data). Michaely et al. (1995) do not find any significant results at all in the long term, and our study thus complements their results and brings some interesting insights to science.

Our findings give rise to topics for future research. The fact that omissions result in large positive excess returns is an entire area that could be further explored, to see whether these results are due to our data sample or are more generally valid. It could also be interesting to undertake a comparative study between Sweden and other Nordic, as well as European, countries. Furthermore, it is interesting to also investigate ordinary dividend increases or decreases in a Swedish context and compare to our results.

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Appendix A. Overview of GICS Sectors

Presentation of all Global Industry Classification Standard sectors, indexed from 1 to 11.

Index	Sector
1	Communication Services
2	Consumer Discretionary
3	Consumer Staples
4	Energy
5	Financials
6	Health Care
7	Industrials
8	Information Technology
9	Materials
10	Real Estate
11	Utilities