

Dividend frequency – The newest addition to Nordic companies' toolbox

A study of the rationale for, and impact of, dividend frequency changes in listed Nordic companies

Viktor Jintoft*

Erik Lyrvall**

ABSTRACT

Most companies listed in the Nordics pay dividends once a year, and the ones who pay more often are likely to have their legal origin in a country outside of the Nordics. However, during the last five years, a total of 32 companies listed in the Nordics have increased their dividend frequency. The capital market reaction to these changes is usually positive surrounding the announcement, especially if the change leads to an increase in present value of future dividends for the investors. The most commonly stated reason for increasing frequency is to better match the payment of dividends with the company's cash flow before financing, followed by investor friendly reasons such as more quickly distributing profits to its investors. How the change in frequency is practically made varies between companies, as some companies postpones part of their dividend when increasing frequency, while others advances part of the dividend. All companies headquartered in Sweden that have changed dividend frequency have delayed payment of part of its dividend, and we partly blame this on the legal framework in Sweden, which is different from the ones in the other Nordic countries. We suggest that the Swedish Companies Act is revised so that the Annual General Meeting may mandate the Board of Directors to distribute dividends throughout the year, just as with share repurchases.

Keywords: Dividend frequency, Payout policy, Nordic capital markets

Tutor: Associate Professor Michael Halling

Date: 11th of December, 2017

* 22845@student.hhs.se

** 40983@student.hhs.se

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1. Introduction

In the early 1900s, the first fire trucks built needed to stand out from the crowd of black automobiles. It was decided to paint the trucks red to make other drivers and pedestrians alert of the fire trucks and move out of the way. While the coloring served its purpose, and the color red became a hallmark for fire trucks, 1970s scientific research showed that red is the first color to disappear when light fades, and that fire trucks instead ought to be colored in a neon color that is more recognizable throughout the day.

Few U.S. fire departments decided to follow the scientific findings and paint their fire trucks neon, and the ones trying ended up changing back to the color red following tough internal and external resistance driven by tradition, pride, and alleged bullying between fire departments.

Just as fire trucks are colored red because they always have been, it seems as most Nordic listed companies pay dividends once a year because it is what they always have been doing. However, during the last years, many Nordic companies have increased their dividend frequencies, and we want to find out if this is a trend that will sustain. Will most Nordic companies' dividend policies become neon, or will they all go back to being red?

1.1 Purpose

The purpose of this thesis is to i) provide an overview of the topic of dividend frequency in the Nordic countries, ii) examine why many Nordic listed companies have changed dividend frequency, iii) analyze what the reactions and effects have been from the changes, iv) evaluate the stock market returns of frequency changers and valuations of companies with different frequency levels, and v) discuss if increasing dividend frequency is a trend that we will continue to see.

Quantitatively, the thesis analyses the characteristics of companies with high- versus low dividend frequencies, the present value effect of changes in frequency, investors' reactions to changes in dividend frequencies, and the market valuation of high dividend frequency companies relative to low dividend frequency companies. In addition, to test qualitative findings, we analyze the stock performance of dividend frequency changing companies relative to their peers.

Qualitatively, the study presents interview findings regarding companies' rationale for changing dividend frequency, reaction to the changes, and opinions from various stakeholders.

1.2 Delimitations

Incorporating both a quantitative part and a qualitative part somewhat limits the depth of the analyses in each part, even though we believe that including both parts contributes to the quality of the thesis as a whole.

With respect to the time limitation set by the length of the course, this thesis is delimited in a number of ways. For time-series scope this study focus on the time period 2006 to 2017. This time scope is set for two reasons. Firstly, the paper “The More the Merrier” by Ferris et al. (2010) focuses on the time period 1995-2006, which allows this study to build on and extend on the study by Ferris et al. Secondly, data availability, and thus also time limitations, favors a more recent time series. For geographical scope this thesis focuses on the Nordic stock markets and its constituents. The geographical scope is also set mainly for two reasons. Firstly, to limit the number of companies in our sample and thereby the data needed to be retrieved and analyzed. Secondly, it aids in conducting interviews with company representatives and other stakeholders.

1.3 Disposition

This introductory chapter is followed by Chapter 2 that consists of a literature review of the existing literature on the topic of dividend policies and its subcomponents, and Chapter 3, in which the hypotheses are presented. Chapter 4 consists of an overview of how data has been gathered and of what that data looks like, followed by descriptions of test methodology in Chapter 5. Results from the quantitative studies are presented and analyzed in Chapter 6, and interview findings are presented and analyzed in Chapter 7. The summary of findings and discussions about limitations of our tests are described in Chapter 8, followed by conclusions and recommendations in Chapter 9. The thesis ends with a list of references and appendix.

2. Literature review

Dividend policy is a fundamental area of corporate finance, making it a well-examined topic in academic journals as well as in executive boardrooms. An influential voice in the study of dividend policy was Miller and Modigliani's 1961 paper *Dividend Policy, Growth, and the Valuation of Shares*, in which they study dividend policy from a capital market efficiency perspective and conclude that in perfectly efficient capital markets, dividend policy is irrelevant for share value. In other words, shareholders would in such perfectly efficient capital markets have as high preference for capital gains as they would for dividends. In the years to follow, relaxations to Miller and Modigliani's assumptions of perfectly efficient capital markets led to a variety of literature examining how dividend policy is affected by inefficient capital markets.

In inefficient capital markets, dividend policies do arguably impact value, forcing companies' leadership to determine, among other things, (i) *whether or not to pay out earnings to shareholders*, (ii) *how much to pay*, (iii) *how to pay*, and (iv) *how often to pay*.

(i) *Whether or not to pay out earnings*

In contrast to Miller and Modigliani's paper on dividend policy irrelevance to shareholders, John Lintner (1962) and Myron Gordon (1963) developed the so-called "Bird-in-hand theory", stating that investors prefer dividend payouts over capital gains due to the inherent uncertainty of capital gains. This theory was developed as a counterpoint to Miller and Modigliani's dividend irrelevance theory and sought to prove that dividend policies do affect share value.

In addition, Black and Scholes (1974) analyze how market inefficiencies such as taxes, transaction costs, or institutional investment constraints entail investor segmentations, including so called dividend clienteles that have preference for dividend-paying stocks. Baker and Wurgler (2004) argue that managers tend to cater to these investor preferences and initiate dividend payouts when investor demand for dividend-paying stocks results in a stock price premium paid.

Another market inefficiency to take into consideration is the asymmetric information between shareholders and the company's management. In inefficient capital markets, managers have information that is not readily available to all investors, making their decisions and actions carriers of information. The idea is that an introduction of a dividend policy, or changes to a current dividend policy, may reflect managers' views about the company's future prospects. This idea is generally known as the dividend signaling hypothesis (Berk and DeMarzo, 2013).

(ii) How much to pay

Following Lintner's and Myron Gordon's initial counterpoint to Miller and Modigliani's dividend irrelevance theory, further studies were conducted to map dividend policy factors that affect share value in companies. Rozeff (1982) analyze the optimal dividend payout ratio with regards to a company's investment policy as well as agency cost. Rozeff's model of optimal dividend payout show that increased dividends lower agency costs but raise the costs of external financing. The optimal dividend payout ratio in Rozeff's model would minimize the sum of these two costs. The results from Rozeff's study and model are that:

i) Companies establish lower dividend payout ratios when they are, or anticipate, experiencing higher revenue growth since high growth entails higher investment expenditures. Mentioned reason for why investment policy influences dividend policy is that external financing used for dividend payments is costly.

ii) Companies establish lower dividend payout ratios when they possess higher beta coefficients since higher betas are reflections of higher operating and financial leverage. Mentioned reasons why dividends are lower in these companies is because dividend payments are quasi-fixed charges which are substitutes for other fixed charges. Companies with higher betas, entailing higher leverage and thus higher fixed charges, pay lower dividends in order to avoid the costs of external financing.

iii) Companies establish higher dividend payouts when insiders hold a lower fraction of the equity and/or when a greater number of stockholders own the outside equity. Mentioned reasons why this would increase dividends is that dividend payments are part of the company's optimum monitoring/bonding package and act to reduce the agency costs in the company.

In a survey of corporate executives, John Lintner (1956) finds that companies with dividend policies rarely change the level of earnings distribution. Maintaining relatively stable dividends from year to year is a practice called "dividend smoothing". Lintner suggest that these observations originated from i) management's belief that investors prefer stable dividends with sustained growth, and that ii) management desire to maintain a long-term target level of dividends as a fraction of earnings. Therefore, Lintner concludes that companies only raise their dividends when they perceive a sustainable long-term increase in expected level of future earnings, and that companies only cut dividends as a last resort. These findings are tied to the aforementioned signaling effect of dividend policies.

(iii) How to pay

Payout policies in companies can differ also in terms of how earnings are distributed to shareholders. While dividends may be the most well-known channel of distribution of earnings, share repurchases are also ordinary measures of distributing earnings to shareholders.

In their study of U.S. companies, Jagannathan et al. (2000) find that stock repurchases and dividends are used at different times from one another, and by different types of companies. The study finds that while dividends increase steadily over time, stock repurchases are very pro-cyclical. In their generalization, Jagannathan et al. find that dividends are paid by companies with higher “permanent” operating cash flows, while stock repurchases are used by companies with higher “temporary” non-operating cash flows. In addition, they find that companies that repurchase stocks also have much more volatile cash flows and distributions, and that repurchases are generally conducted following poor stock performance whilst dividends increase following good performance.

In line with the aforementioned research by Black and Scholes (1974) as well as Baker and Wurgler (2004), market inefficiencies such as taxes, transaction costs, or institutional investment constraints entail investor segmentations, where certain investor types prefer dividends over capital gains. It is thus in the interest of management to analyze its current and potential investor base and cater to these investor bases' preferences, ultimately deciding upon whether to distribute earnings as dividends or as capital gains through share repurchases.

(iv) How often to pay out earnings

A factor in payout policy that previously has been rather unexamined is the frequency which companies pay out earnings. While Miller and Modigliani, according to their dividend irrelevance theory, likely would deem dividend frequency irrelevant from a share value perspective given that it is a subcomponent of dividend payout policies, a more recent study incorporating relaxations to the perfectly efficient hypothesis have analyzed if different payout frequencies lead to different company value and what factors determine different payout frequencies.

In their 2010 paper, Ferris et al. document a strong positive relationship between payment frequency and company value, which they confirm with an event study of dividend payment frequency changes. They argue that these results are due to two explanatory frameworks: i) prospect theory and mental accounting, implying that investors receive higher utility when a given level of dividends is paid more frequently, and ii) non-behavioral factors such as legal regime as well as the level and standard deviation of operating income. Ferris et

al. argue that companies' dividend payout frequency ought to be as frequent as possible according to the behavioral factors, but that setting the frequency level is a tradeoff decision between the behavioral and non-behavioral factors.

An adjacent study that can be applied to the topic of dividend payout frequency is done by Brennan et al. (2005). Their study analyzes so-called "dollar cost averaging", or put differently, the investment strategy of smoothing investments over time. The study shows that smoothing investments over time, and not only invest at a single occurrence, benefits investors. Seeing earnings payouts as funds that are likely to be reinvested in equities or possibly the same stock, there would be an argument for increased investor benefit from receiving dividends more frequently.

Summary

Influential literature regarding dividend policies and their potential impact on share value was written by Miller and Modigliani (1961), whose dividend irrelevance theory state that paying dividends should have no impact on share value. However, after making relaxations to Miller and Modigliani's assumption of perfectly efficient capital markets, John Lintner (1962) and Myron Gordon (1963) state that paying dividends does impact share value. Following this relaxation and initial shift in stance towards dividend policies, many studies set out to analyze subcomponents of dividend policies. Among these studies it was found that share value is affected by for example *how much* is paid out, *how earnings are paid*, and *how often* earnings are paid out.

We see payout frequency as a subcomponent of dividend policies that is insufficiently scrutinized, with many questions outstanding with regards to how companies' payout frequency impact share value and operations. We therefore aim to contribute to existing literature through testing our own hypotheses regarding this topic, and help better explain the impact of changes in dividend frequencies.

3. Hypotheses

To fulfill the first four purposes of the thesis – to examine the topic of dividend frequency in general, and to examine why many Nordic companies have changed dividend frequency and what the effects of it has been – we formulate a number of hypotheses that will be tested through quantitative tests. The purposes of the thesis will also be explored qualitatively, but we do not formulate hypotheses for those tests.

To examine the topic of dividend frequency in general we later analyze the characteristics of companies with high dividend frequency versus those of companies with low dividend frequency. One such characteristic that we hypothesize exists, is that so-called dividend stocks (stocks with e.g. a high payout ratio) are more likely to pay dividends semi-annually or quarterly. We base this hypothesis on the idea that investors that invest in dividend stocks appreciate frequent dividend payments. We formulate our first hypothesis as follows:

H1: Companies whose stock has higher payout ratios are more likely to have a high dividend frequency than companies whose stock has lower payout ratios

Following Jagannathan et al.'s (2000) finding that dividends are usually paid by companies with more permanent operating cash flows than other companies, we hypothesize that also companies with high dividend frequencies have more permanent operating cash flows than companies with low dividend frequencies. We formulate our second hypothesis as follows:

H2: Companies with high dividend frequency tend to have less volatile operating cash flow than companies with low dividend frequency

Hypotheses H1-H2 summarizes what characteristics we believe companies that pay dividends semi-annually or quarterly have, and we will later test if they hold.

As for effects of a change in dividend frequency, we hypothesize that the net effect on the present value of dividends is unchanged following a change in frequency. When a company changes frequency, the discount factor used to discount future dividends will be changed if the average timing of dividends changes. However, we believe that companies will adjust the size of their dividend to off-set changes in the discount factor. We formulate our third hypotheses as follows:

H3: The present value of future dividends will be unaffected following a change of dividend frequency

We also hypothesize that the capital market reacts positively to dividend frequency increases and negatively to dividend frequency decreases. We base these two hypotheses on the finding of Ferris et al. that such reactions exist. We formulate our fourth and fifth hypotheses as follows:

H4: The capital market's reaction to a dividend frequency increase is positive and statistically significantly different from zero

H5: The capital market's reaction to a dividend frequency decrease is negative and statistically significantly different from zero

Hypotheses H3-H5 summarizes what quantitative effects we expect to see when a company increases dividend frequency, and we will later test if they hold.

As for the valuation of companies with different frequency levels, we believe that companies with high dividend frequencies on average have higher valuations than companies with low dividend frequencies. We base this hypothesis on the literature by Ferris et al., and the notion that a high dividend payout frequency may attract a broader investor base, thus lowering the cost of capital, entailing a higher valuation and thus also a better performance. We formulate our sixth hypothesis as follows:

H6: The market valuation of companies that have high dividend frequency is greater than for companies with low dividend frequency

Hypothesis H6 summarizes our ideas about valuations connected to companies' dividend frequency.

4. Data Gathering and Data Overview

This chapter describes how the data needed for the quantitative and qualitative parts of this thesis has been gathered. An overview of the gathered data is also presented, as well as a discussion of our data sources.

4.1. Financial data

To analyze the characteristics of companies with certain dividend frequencies and to identify the companies that have changed dividend frequency during the last years, we retrieve data from Thomson Reuters Datastream ("Datastream") of companies that are, or have been, part of one of the Nordic indices, for our time period 2006-2016. After adjusting the data set for companies appearing more than once due to name changes, listings on multiple exchanges, and several share classes, we end up with a set of 1,162 companies.

For the 1,162 companies, we retrieve financial data including dividend data such as payout frequency and total amounts of payments, earnings data such as net income, balance sheet data such as total assets, and industry and country data. Industry shows the Standard Industrial Classification code and name, while country shows the legal origin of the company. Data is gathered for the time period that we are focusing on, 2006-2016, as well as for some previous years for variables that we later will need historic values for. Dividend data is also retrieved for 2017 to the extent that it is available. In total, we have 9,460 firm-year observations with data for the years 2006-2016.

Although Datastream provides us with firm-year data on dividend frequency, dividend frequency for some companies is reported although their total dividend payment is equal to zero. Adjusting for these instances, we end up with 4,378 observations of dividend frequencies from 2006 to 2016. The distribution of frequencies across legal origins and industries is displayed in Table 1 and Table 2. As displayed in Figure 1 and Figure 2 our data supports our observation that there has been a trend in the Nordic countries during the last years to increase the frequency of dividend payouts. During the same time period, the fraction of listed companies paying dividends has been fairly constant. Note that the graphs only display the companies with legal origin in one of the Nordic countries.

Table 1: 2006-2016 firm-year observations, by country of headquarters

Frequency	No dividend	Annual	Semi-annual	Quarterly
Nordics				
Denmark	1,207	705	23	4
Finland	475	984	2	4
Iceland	116	72	-	-
Norway	1,421	623	55	68
Sweden	1,586	1,716	19	8
Nordics total	4,805	4,100	99	84
<i>Distribution (%)</i>	53%	45%	1%	1%
Legal base outside of the Nordics				
Total others	277	38	37	20
Total Nordic listed companies	5,082	4,138	136	104
<i>Distribution (%)</i>	54%	44%	1%	1%

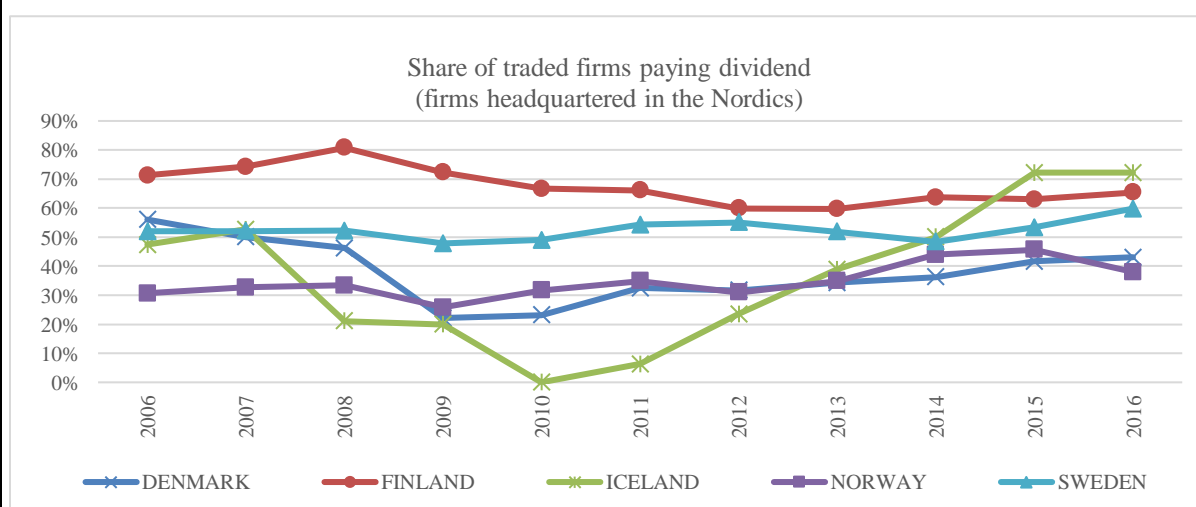
This table shows the firm-year observations in our sample, presented by their country of headquarter

Table 2: 2006-2016 firm-year observations, by sector

	Total	Dividend-Paying	Distribution of Dividend Payers		
			Annual	Semi-Annual	Quarterly
Basic Materials	479	212	96.7%	1.9%	1.4%
Consumer Goods	916	526	97.5%	1.5%	1.0%
Consumer Services	813	369	97.3%	0.3%	2.4%
Financials	1,836	903	96.3%	2.0%	1.7%
Healthcare	869	246	93.1%	6.9%	0.0%
Industrials	2,468	1,372	92.4%	5.1%	2.5%
Oil & Gas	807	186	78.0%	2.7%	19.4%
Technology	1,072	457	98.7%	1.1%	0.2%
Telecommunications	118	74	87.8%	10.8%	1.4%
Utilities	82	33	100.0%	0.0%	0.0%
Total	9,460	4,378	94.5%	3.1%	2.4%

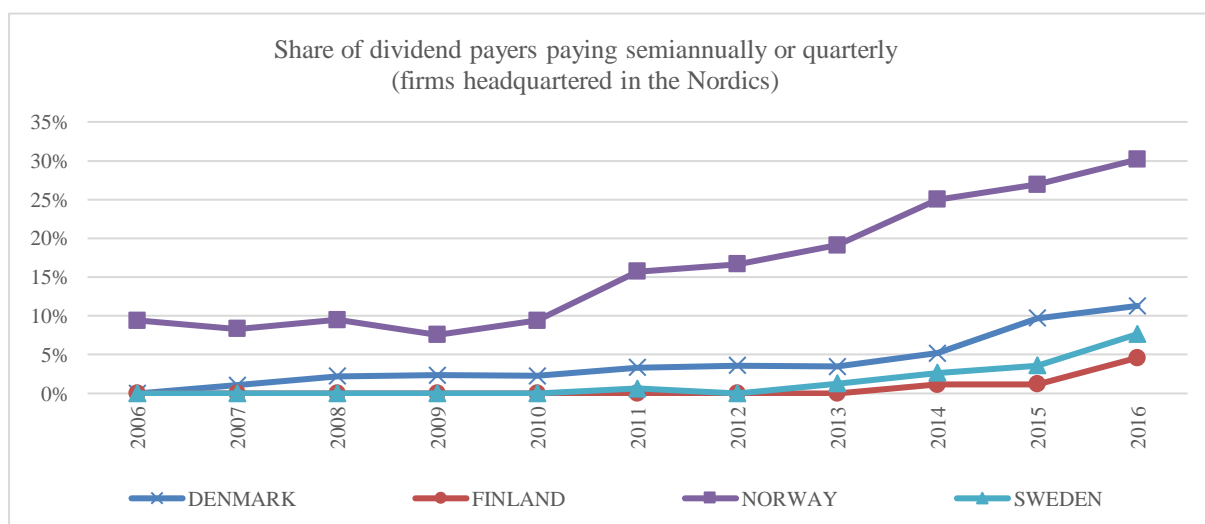
This table illustrates the number of observations in our sample, how may pay dividends, and their frequencies

Figure 1



This figure illustrates the share of traded firms headquartered in the Nordics that pay dividends

Figure 2



This figure illustrates the share of dividend-payers headquartered in the Nordics that pay dividends more frequently than annually

Once dividend frequencies are gathered, we identify the instances in our dataset where a company has a different dividend frequency than the previous year. Interestingly, there are no instances of decreases in dividend frequency but only increases. The correctness of these instances is verified by visiting company websites and reading financial reports. After adjusting for instances of e.g. special dividends, and adding some changes that we found through news articles, we end up with a set of 34 instances of changes in dividend frequencies (made by 33 companies, since one company changed dividend frequency twice). The identified companies changing dividend frequency (from here on referred to as the “changers”) are listed in Table 3, together with data regarding their change. While going through dividend data for each company, we find that although the changers are similar in that they have increased dividend frequency, the way in which they practically have changed frequency varies a lot. Some companies (“postponing changers”) still decides on dividends once a year but postpones the payment of a part (usually 50%) of the dividend, while some other companies (“advancing changers”) increases the number of decisions of dividends and pays dividend closer to the period from which they come. The first procedure is most common in Sweden and Finland, and the second is most common in Denmark and Norway (A further discussion regarding the different methods is found in Section 5.2., and an overview of the legal differences between the Nordic countries, which might be an explanation for the differences, follows in Section 4.3.).

After identifying the instances of dividend frequency changes and the dates for announcement of the changes, price data for i) the stocks, and ii) market indices was gathered for the dates surrounding the announcement dates. Finally, some additional financial data for the changers was also retrieved from their financial reports as well as analyst estimates of Earnings Per Share and dividends from Thomson Reuters. For the companies changing their dividend frequency and for comparable Nordic peers we retrieve total return data from 2005 to November 2017 from Datastream. The total return data includes stock return as well as the reinvestment return received from dividend payments. Nordic comparable peers are retrieved from Compustat using the two-digit SIC (Standard Industrial Code) code of the companies that have changed their dividend frequency and include all Nordic comparable peers that has been active during any of the years 2005 to November 2017. In all, we find 976 comparable Nordic peers.

Table 3: Overview of Nordic listed companies changing their dividend frequency (2006 - October 2017)

Country listed in	Company	Industry	First year with new frequency	Number of dividend(s)		Dividend size change	Number of decisions	Timing of payments
				from	to			
Sweden	NCC	Building Construction	2014	1	2	+20%	Same	Postpone
Sweden	ATLAS COPCO	Industrials	2015	1	2	+9%	Same	Postpone
Sweden	HUSQVARNA	Consumer Goods	2015	1	2	+10%	Same	Postpone
Sweden	TELIA	Telecommunications	2016	1	2	+0%	Same	Postpone
Sweden	LUCARA DIAMOND	Mining	2016	2	4	+50%	Same	Advance
Sweden	ELEKTA	Healthcare instruments	2016/17	1	2	+0%	Same	Postpone
Sweden	FAST PARTNER	Real Estate	2017	1	2	+10%	Same	Postpone
Sweden	COM HEM	Telecommunications	2017	1	2	+167%*	Same	Postpone
Sweden	CASTELLUM	Real Estate	2017	1	2	+18%	Same	Postpone
Sweden	ELECTROLUX	Consumer Goods	2017	1	2	+15%	Same	Postpone
Sweden	KLÖVERN	Real Estate	2017	1	4	+14%	Same	Postpone
Sweden	WALLENSTAM	Real Estate	2017	1	2	+50%	Same	Postpone
Sweden	H&M	Consumer Services	2017	1	2	+0%	Same	Postpone
Finland	CITYCON	Real Estate	2016	1	4	+0%	Same	Postpone
Finland	WÄRTSILÄ	Industrials	2017	1	2	+13%	Same	Postpone
Finland	ASPO	Industrials	2017	1	2	+5%	Same	Postpone
Finland	RAMIRENT	Business Services	2017	1	2	+0%	Same	Postpone
Finland	RAPALA	Consumer Goods	2017	1	2	-50%	Same	Postpone
Finland	FISKARS	Consumer Goods	2017	1	2	n.a.	Same	Advance
Norway	PROSAFE	Oil & Gas	2012	3	4	+15%	More often	Advance
Norway	ATEA	Business Services	2014	1	2	+9%	Same	Postpone
Norway	STATOIL	Oil & Gas	2014	1	4	+3%	More often	Advance
Norway	TELENOR	Telecommunications	2015	1	2	+4%	Same	Postpone
Norway	AKVA GROUP	Industrials	2015	1	2	+0%	More often	Advance
Norway	SELVAAG BOLIG	Real Estate	2015	1	2	+25%	More often	Advance
Norway	AF GRUPPEN	Industrials	2015	1	2	+60%	More often	Advance
Norway	TGS-NOPEC GEOPHS.	Oil & Gas	2016	1	4	-41%	More often	Postpone
Norway	ENTRA	Real Estate	2016	1	2	+15%	More often	Advance
Denmark	KOBENHAVNS LUFTHAVNE	Transportation	2007	1	2	+62%	More often	Advance
Denmark	COLOPLAST	Healthcare Instruments	2013/14	1	2	+64%	More often	Advance
Denmark	TRYG	Insurance	2015	1	2	+3%	More often	Advance
Denmark	DFDS	Industrials	2015	1	2	+33%	More often	Advance
Denmark	NOVO NORDISK	Chemicals	2016	1	2	+19%	More often	Advance
Denmark	TRYG	Insurance	2017	2	4	n.a.	More often	Advance

This table contains information regarding the identified changers. Dividend size change is calculated as the total dividend amount paid in the first year with a dividend frequency change, divided by the total dividend amount paid in the year prior to the frequency change, minus 1. Number of decisions shows whether or not the amount of dividend payout decisions taken per year has changed following the dividend frequency change. Timing of payments refers to whether or not the dividends on average have been postponed or advanced following the frequency change.

4.2. Qualitative data

To get an understanding of the real drivers of why companies change dividend frequency and the effects of a change, we reached out to the identified changers to ask them about the decision to change frequency and the effects of it. Companies were contacted by email, and information regarding the change was also gathered from annual reports, press releases, and possible interviews available on the internet.

To get a closer understanding of why a company changes dividend frequency and the effects of it, we conducted in-person and telephone interviews with NCC stakeholders, since they were the first Swedish company to change frequency.

To get an understanding of the “changers”’ reasons for increasing dividend frequency, and the effects of doing so, we asked questions aimed at getting that understanding. The first point of contact with all of our interviewees was email, and although the format of our emails changed slightly over time, the questions that we asked were fairly similar in all email. Questions asked included:

- **What made you change your frequency of dividend payments?**
 - What were the benefits of making the change?
 - What were the downsides of making the change?
- **Have you reached the intended effects** with the change in frequency?
- What has the **reaction from investors** been following your decision to change dividend payout frequency?

We have also gathered views on the topic from the owner side, by talking to representatives of two large Swedish pension fund and the Swedish Shareholders' Association (Aktiespararna), as well as with equity analysts.

Further, to get an understanding of why a company may choose not to change dividend frequency, we conducted an interview with Kalle Sundström, CEO of Stora Enso, a company that that has considered changing dividend frequency but chosen not to do so.

In total, we have conducted 4 in person interviews, 3 telephone interviews, and have had email correspondence with 18 interviewees. Table 9 in the appendix provides an overview of our sources for the qualitative part of the thesis.

4.3. Legal overview

Chapter 17 1 § of the Swedish Companies' Act (Aktiebolagslagen, "ABL") qualifies both the distribution of profits and the acquisition of own shares as forms of transfer of value from a company to its shareholders, and according to chapter 17 3 § of ABL, the amount of restricted capital that is determined by the balance sheet most recently approved by the general meeting puts a limit on how much can be transferred. Furthermore, it is stated in chapter 17 4 § of ABL that transfers may take place between two AGMs, given that the mentioned restricted capital is taken into account.

However, the design of the laws regarding the distribution of profits and the acquisition of own shares differs. According to Chapter 18 1 § of ABL, decisions regarding the distribution of profits are made by the AGM, and the decision shall be based on a proposal indicating the dividend size and date of dividend (chapter 18 3 § of ABL). Regarding repurchases, chapter 19 18 § of ABL states that the AGM can decide on repurchases and may authorize the Board to decide on repurchase of up to 10% of outstanding shares (chapter 19 15 § of ABL), given that there is sufficient free equity available to pay repurchase with. This discrepancy is further discussed in Section 9.3.

The laws governing dividend payments and share buybacks in Norway, Finland, and Denmark are slightly different than the Swedish ones in terms of having less of a discrepancy between the decision making for dividends and for share buybacks. In Norway, the general meeting can mandate the board of directors to distribute dividends during the time period until the next annual general meeting (Lov om aksjeselskaper § 8-2) and to repurchase shares during a time period of up to two years (Lov om aksjeselskaper § 9-4). Similarly, in Finland the general meeting can mandate the board of directors to distribute dividends up until the next annual general meeting (Aktiebolagslag 13 kap. 6 §) and to repurchase shares during a time period of up to 18 months (Aktiebolagslag 15 kap 5 §). In Denmark, the general meeting must decide on ordinary dividend (Danish Companies Act 180), but can mandate the board of directors to distribute extraordinary dividends (Danish Companies Act 182) and to repurchase shares during a time period of up to five years (Danish Companies Act 198).

4.4. Discussion of data sources

With respect to the quantitative data in our study, a majority is retrieved from the third-party information provider Thomson Reuters. Given the large quantities of fundamental and stock price data fetched, it was outside our scope to manually search and adjust for any potential

errors in the third-party data. We are aware of the potential risk of errors in these datasets, but argue that given the large quantities fetched, the potential errors in the data won't materially affect the results of our study.

We did, however, search for and find errors in the third-party provided dividend frequency data. In order to correct this crucial data, we manually adjusted the data based on primary sources such as financial reports and correspondence with companies.

With regards to the qualitative data, it can be debated how well IR persons know about the real reasons for the decision of changing dividend payout frequency since it is the board of directors that proposes change. We have thus to the greatest extent possible contacted CFOs directly in order to get more precise and knowledgeable answers. In cases where CFOs have been unavailable for correspondence, we have sought answers from employees in the Investor Relations divisions. It should also be noted that it is the board members who proposes dividends and changes in dividend frequency to the general meeting, but contacting them is much more difficult than CFOs and IR divisions given availability of contact information. As presented in Section 7.3, none of the frequency changers have cited negative investor reactions regarding their change, and there is certainly a possibility that the companies do not want to present their decisions as bad ones.

5. Methodology

In this chapter, the test designs of our quantitative studies are discussed. How we interpret interview findings is also discussed.

5.1. Frequency level regression

One of this thesis' purposes is to analyze the characteristics of companies with different dividend payout frequencies. To understand if there are certain company characteristics that are descriptive of a company's level of dividend payout frequency, we follow Ferris et al. (2010) to run a linear regression and test annual dividend payout frequency on a number of explanatory variables. In line with Ferris et al. (2010), we remove companies that are active in the Financials and Utilities sectors. This leaves us with a sample of 3,442 firm-year observations of dividend frequencies.

The dependent variable for *dividend payout frequency* (LOG_DPF) is based on the number of ordinary dividends paid out per year according a company's dividend policy. This excludes so-called special dividends, extra dividends, or other dividends not originating from the company's dividend policy. This study, like Ferris et al. (2010), then creates a logistic function of the dividend payout frequency, resulting in the value 1 when the number of dividends paid per year equals or exceed a certain threshold, and results in the value 0 otherwise. This dummy variable allows this study to distinguish between "high-frequency payers" and "low-frequency payers". While Ferris et al. chose to set the threshold at quarterly [4] dividends and more frequently, this study sets the threshold at semi-annual [2] and more frequently. This decision was made in the context of our thesis, focusing on Nordic companies where the status quo is annual [1] dividend payout frequency for dividend payers, in comparison to Ferris et al. (2010) that examine the global equities markets where they find a far more even frequency distribution among payers.

The independent, or explanatory, variables originate from the study conducted by Ferris et al. (2010). These explanatory variables include *legal regime*, *firm size*, *variation in operating income*, *payout ratio*, *growth*, and *profitability*. In addition, based on the results from the qualitative analysis, two additional variables are added to extend the original model. A description of the rationale for why these variables ought to contain explanatory value in describing the dividend payout frequency levels in our sample, as well as a description of how the variables are operationalized, is followed below.

As the first independent variable this study incorporates *legal regime* (COMMONLAW). The variable is operationalized using a dummy variable that takes the value 1 when a company is operating under a legal regime with common law, else 0. The legal regime was found to be of explanatory value in Ferris et al. (2010), where they find that companies operating under common law tend to have a higher dividend frequency than companies operating under civil law.

Ferris et al. (2010) also saw in their study that firm size also had a positive impact on dividend payout frequencies, where larger companies tend to have more frequent dividend payouts. To operationalize *firm size* this regression will use both operating income as well as total assets as proxies. The operationalization of firm size using operating income will be calculated as the average operating income scaled by the book value of assets for the years $t-1$, $t-2$, $t-3$, and $t-4$ (OPINC_DEC). The other proxy for firm size (SIZE_DEC) is calculated as the book value of assets at year-end, converted to SEK. The two proxies are then decile ranked based on each year's observations for each proxy.

As in the studies by Stephens and Weisbach (1998) and Ferris et al. (2010), we include an explanatory variable for *variation in operating income*. Given that dividends are paid out of by so-called "permanent earnings" according to Jagannathan et al. (2000), the variation in operating earnings serves as a measure for the uncertainty of these "permanent earnings". Ferris et al. (2010) found in their study that companies with higher variation in their operating income tend to have lower dividend payout frequency. To operationalize the *variation of operating income* (SD_OPINC_DEC), we look at the standard deviation of the operating income. For each observation, the standard deviation of operating income is calculated using the operating incomes for year $t-1$, $t-2$, $t-3$, and $t-4$. These standard deviation measures will serve as proxies for the variation in cash flows available for investments and dividend payments between years. Following the calculations of standard deviation, we rank the observations in deciles, where each observation is ranked based on that year's observations.

The independent variable *payout ratio* was used in Ferris et al. (2010) where it was found that high payout ratios tend to drive a high dividend payout frequency. The variable for *payout ratio* (DIVEARN_DEC) is operationalized as the total amount of dividends paid divided by the net income. This measure is a common description of a company's payout ratio, and is also commonly used by financial officers when setting the level of earnings distribution. The calculations are then ranked into deciles based on that year's observations.

As Ferris et al. (2010) we incorporate the independent variable *growth* as it was reported in their paper that companies with greater economic growth and growth opportunities tend to

have lower dividend frequencies and rather reinvest earnings in the business. The variable for *growth* (ASSETGROWTH_DEC) is operationalized using the year-on-year growth in the book value of assets. The growth rates are then decile ranked based on that year's observations.

A proxy for *profitability* was used in Ferris et al. (2010) and is argued to have explanatory value given that a company's profitability impacts the cash available to pay dividends. Their study also showed that *profitability* had a positive relation to dividend payout frequency, where more profitable companies tend to payout dividends more frequently. The variable for *profitability* (ROA_DEC) is operationalized using Return on Assets ("ROA"). The measure ROA is calculated as the year-end net income divided by the year-end book value of assets. The measure is then decile ranked as the previous variables.

In addition to the regressors used by Ferris et al. (2010), we add two variables based on our findings in the qualitative analysis, one cash flow variable to measure variance in operating cash flow between quarters within a year (QRTCF_DEC) and one variable that sets the companies' end of year cash level in relation to dividends paid (CASHDIV_DEC). The cash flow variable is measured as the highest quarterly operating cash flow minus the lowest quarterly operating cash flow, divided by the latter. The variable will in time t equal the average measure for $t-1$ and $t-2$, and is decile ranked based on that year's observations. The rationale for including this variable is that companies that have an evenly spread operating cash flow over the year, should benefit from more frequent dividend payments, whereas companies that have most of their operating income during one part of the year do best in distributing dividends during that period only. The rationale for including a cash level variable is that companies that need to take a bank loan to pay dividends should be more prone to pay dividends at a higher frequency in order to avoid costs for lending money at the bank.

The method of decile ranking most of our independent variables helps us distinguish the relative size of our observations within each variable and deal with potential nonlinearities, which enables us to generalize our findings in more hands-on manner. Other possible methods would include e.g. percentiles that bundle data less roughly than deciles, but given that the method of decile ranking is used in the paper by Ferris et al. (2010) and given that the use of percentiles would be too granular to discuss results from we go with decile rankings, well aware about the potential drawbacks of this method.

To control for industry specific characteristics with regards to the abovementioned variables, we include industry fixed effects in our regression. We do this based on the fixed effect assumption that individual-specific effects are correlated with the independent variables.

In our case this translates to us assuming that industry specific characteristics, the economic nature of an industry, are correlated with the independent variables.

5.2. Present value analysis of dividends

As stated in hypothesis H5, we hypothesize that companies will adjust the size of its dividend to off-set a change in the discount factor, which is driven by change in timing of dividend payout, used to calculate the present value of dividends. To test the hypothesis, we calculate the present value of future dividends at the time of announcement of an increased dividend frequency. However, to do such an analysis it is key to understand how changes are made.

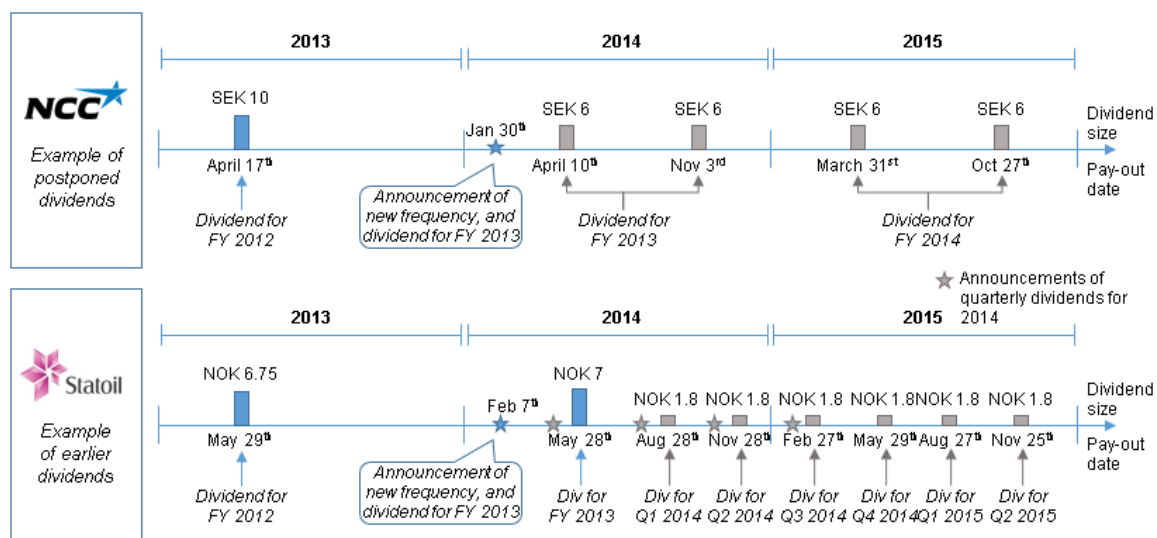
As mentioned in Section 4.1., when increasing dividend frequency, some companies delays the payment of a part (usually 50%) of the dividend, while some other companies starts paying dividend earlier. In the former case, the decision of the size of the total yearly dividend is usually made at the same time as before the frequency increase, while the decision of dividend size is in the latter case usually made for each individual dividend at the end of every quarter or half-year. To exemplify how this looks in reality we use two of our changers as examples in Figure 3.

To calculate the present value change for a company that delays dividends, we compare the present value of announced dividends at the announcement date of the change in frequency with the present value of the counter-factual dividend that the company would have paid in the case of no change in frequency. Since we do not know what the size of the dividend had been in case of no change of frequency, we use the analysts' estimates for the size of the dividend available through Thomson Reuters as the counter-factual dividend and we assume that it would have been paid at the same time as the first dividend after the change in frequency is paid.

A similar analysis for dividends that are paid earlier is much more limited because the frequency changing company usually does not announce future dividends at the announcement of changed frequency. Instead, dividends are announced each quarter or half-year. Also, there are no estimates for the dividends of companies that pay dividends earlier. We do however make a similar analysis to get an idea of how changes in the timing and sizes of dividends affect present values. To do so, we compare the sum of present values of dividends after a change in frequency with the present value of total yearly dividend for the last year before the change, assuming that the dividend(s) would have been at the same dates as the year before.

After having calculated changes in present values, we also calculate for each instance how much of the change comes from different timing of dividends affecting the discount factor, and how much comes from a change in size of dividends. In our calculations, we assume a discount rate of 15% to calculate present values.

Figure 3: Specific examples of dividend frequency changes



- This illustration shows two examples of how a dividend frequency change can be made. NCC serves as an example of a company that postpones its dividend, and Statoil as an example of a company that advances
- NCC announced a change in dividend frequency on Jan 30th 2014 when it split the payment of the 2013 dividend into two parts, with the later payment occurring more than half a year later than it did the previous year
- Statoil announced a change from annual to quarterly dividend frequency on Feb 7th 2014 when they also announced the 2013 dividend. Instead of splitting 2013's dividend, they started to decide on 2014's dividend after each quarter that year. The four gray stars indicate the decision for the size of each of 2014's quarters' dividend

5.3. Event study of abnormal returns

As Ferris et al. does, we perform an event study to see if the announcement of a proposed change in dividend frequency has any effect on stock prices. We follow MacKinlay's (1997) methodology of how to perform an event study, where we test if there are statistically significant abnormal returns during an event window. To calculate expected returns during the event windows, we use the market model. As market returns, we use the returns of the stock index for the exchange that the company is listed on. Following MacKinlay (1997), we estimate alphas and betas using returns 250 days prior to the event windows, and our event window spans from 5 days prior to the event, to 250 days following the event.

Using an event window starting at 5 days prior to the event is consistent with how Ferris et al. does. However, we have chosen to include returns up to a year after the event as we expect that there might take time for a new frequency to be priced into a stock price, and since investors

that prefer the increased dividend frequency are likely to buy the share once dividends have been split in reality and not just been proposed. We keep the number of days prior to the event at 5 since we do not expect there to much leakage of information, and less so effects on stock prices due to leakage of information. The event window periods being analyzed are $\tau = 0$, $\tau = -1$ to $\tau = 1$, $\tau = -3$ to $\tau = 3$, $\tau = -5$ to $\tau = 5$, and $\tau = -5$ to $\tau = 250$. This study uses multiple event window lengths to mitigate the risk of i) unrelated noise, ii) leakage of information, and iii) delay in information processing by the capital markets.

For the event windows longer than one day, we calculate cumulative abnormal returns for company i from starting day τ_1 to ending day τ_2 as $CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{it}$.

Once abnormal returns during the event windows are calculated for each dividend frequency changing company, we test if the abnormal returns are significantly different from zero by testing $H_0: AR_{it} \sim N(0, \sigma^2(AR_{it}))$. We expect $\sigma^2(AR_{it})$ to be equal to $var(\epsilon_{it}) = \sigma_{\epsilon_i}^2$ from the regression on companies' returns during the estimation window since we use a fairly long estimation window (250 days) and, as suggested by MacKinlay (1997), we assume independence of our abnormal return observations. For the event windows that are longer than one day, the variance is calculated as $\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\epsilon_i}^2$. We test H_0 by running two-tailed student's t-tests.

To test if there are abnormal returns on average, we calculate aggregated cumulative abnormal returns as $\overline{CAR}(\tau_1, \tau_2) = \frac{1}{N} \sum_{i=1}^N CAR_i(\tau_1, \tau_2)$ and the variance of aggregated cumulative abnormal returns as $var(\overline{CAR}(\tau_1, \tau_2))^2 = \frac{1}{N^2} \sum_{i=1}^N (CAR_i(\tau_1, \tau_2) - \overline{CAR}(\tau_1, \tau_2))^2$. When aggregating returns across companies, we assume that there is not any clustering. This is a stretched assumption since there is overlap of event windows and CARs across securities may not be independent, but we make it to limit the scope of our thesis.

5.4. Cross-sectional regression of abnormal returns

As Ferris et al. (2010), this study aims to explain if the announcement of dividend frequency changes drive potential abnormal returns at event days. This study uses two cross-sectional regressions of abnormal returns to analyze if, and how, changes in dividend frequency affects abnormal returns on its announcement. The first one replicates the one in Ferris et al. (2010) and the other extends their model by incorporating additional variables.

In the regression models, the dependent variable is *cumulative abnormal returns* (CAR) is regressed on a number of variables. The cumulative returns are those calculated in Section

5.3. for the event windows of ± 0 , ± 1 , ± 3 , and ± 5 days surrounding the announcement day of a dividend frequency change.

In order to account for factors other than the dividend frequency change announcement that might drive the announcement periods' abnormal returns, this study uses a number of control variables. The control variables serve to contribute with explanatory value in our model and to give a clearer estimate of the impact of the dividend payout frequency change. The control variables introduced in the linear regression model are derived from Ferris et al. (2010) but also from other papers conducting event window studies on adjacent topics such as Earnings Response Coefficients ("ERC"), and will be further discussed below. A significant difference between Ferris et al. (2010) and our study is however how they use a variable named *Frequency Change* (DFC) that is calculated as a new dividend frequency minus the previous dividend frequency. The use of that variable is in their regression because they use a sample with both frequency increases and frequency decreases. Since we do not have any observations of decreases in dividend frequency and most changes are from one dividend a year to two dividends a year, this variable takes a value different from 1 only at a few number of times when there is a larger increase of dividend frequency. To evaluate the effect from dividend frequency increases on abnormal returns, we will focus more on the coefficient and significance of the intercept than Ferris et al. (2010) does.

The independent variable *firm size* is used in Ferris et al. (2010) as well as in multiple ERC studies including Collins and Kothari (1989) and serve as a proxy for the information environment of a company. Large companies are thought to generally be more well-known and thus scrutinized by the capital markets, and are also thought to have more information available for investors. New, and more detailed, information about large companies is therefore thought to reach and be processed by the capital markets quicker than that of smaller companies, leading to a stronger abnormal return reaction on the announcement of new valuable information. The variable for *firm size* (SIZE_DEC) is operationalized using the decile rank of the book value of assets, in Swedish kronor. We use the same decile ranks as in the frequency regression, which are a relative ranking for each year of the Nordic companies that are in our sample. We use the decile ranks from the full sample of companies and not ranks of only the changers, since the latter approach would take into account the companies' sizes in a greater perspective. For example, if our sample were to contain only smaller companies, there would still be companies with high decile ranking given their relative size to the other samples, given the impression that they are actually large companies.

This study incorporates *growth* as yet another independent variable that, as with firm size, was used in Ferris et al. (2010) as well as in Collins and Kothari (1989). The rationale for including a variable controlling for economic growth opportunities lies in valuation theory. Ohlson (1995) showed that the market value of a company is largely determined by the present value of future expected dividends. Given that dividends are closely related to earnings, greater economic growth opportunities entail greater expected future dividends, and ultimately greater market valuation. Therefore, companies associated with higher economic growth opportunities are thought to react more strongly to announcements of valuable information than companies with smaller economic growth opportunities given the higher marginal impact of revised future prospects on expected dividends. The variable growth (MARKETBOOK) is operationalized using the market value to book value of equity ratio. This ratio will be calculated using the market and book value at the date of the announcement date of a dividend frequency change. If the announcement was not made in conjunction with the release of a financial report, the book value of equity is retrieved from the most recent financial statements.

In order to capture any abnormal returns driven by changes in dividend yield, i.e. changes in the level of dividends paid in relation to the stock price, this study incorporates the independent variable *dividend yield change* (DY_CHANGE), which was also featured in Ferris et al. (2010). This measure is important to incorporate given that a change in dividend payout frequency may well come in conjunction with a dividend level increase or decrease, which ultimately affects the valuation and thus the abnormal return surrounding the announcement. The operationalization of the variable is done by calculating the new annual dividend divided by the share price immediately before the announcement, minus the dividend yield immediately before to the announcement. This is in essence a measure for changes in the level of dividends paid, scaled by the share price.

General fluctuations in the level of companies' stock prices is an additional variable we account for. We do this through the independent variable stock price volatility which was featured in Ferris et al. (2010). This measure will assist in explaining any significant abnormal returns surrounding the announcement day that are originating from the volatile nature of a company's stock price and not from the change in dividend payout frequency. The variable (VOL) is operationalized using the annualized standard deviation of the company's stock price prior to the announcement day. The annualized standard deviation of the stock price will be based on 250 trading days' closing stock prices for the period -260 days before the announcement day to -10 days before the announcement day. The period is set to -10 days before the announcement day to exclude any stock prices and volatility within the near range

of the event windows in order to exclude factors of volatility originating from the announcement. A potential flaw in this operationalization of stock price volatility lies in the lack of adjustment to systematic fluctuations. In this model, the stock price volatility is solely based on the annualized standard deviation of a company's stock price, including fluctuations driven by systematic as well as idiosyncratic factors. For this event window study, arguably the company's idiosyncratic risk and volatility is of interest and makes this measure somewhat rough. We acknowledge this potential flaw but see this approach as the most pragmatic given our scope and limitations.

Ferris et al. (2010) include the independent variable *profitability* that serves to control for different levels of profitability among our sample companies. We include this variable (ROA) as well and operationalize it using the profitability metric ROA. The calculations are based on the net income for the latest twelve months divided by the book value of assets. The book value of assets is either the reported figures in the financial report released in conjunction with the announcement of a dividend frequency change or the most recently reported figures.

Collins and Kothari's (1989) ERC study find that a main explanatory variable for abnormal returns surrounding announcement days of financial reports is unexpected earnings. They argue that positive unexpected earnings will on its announcement day result in abnormal returns for the company's stock, while negative unexpected earnings would result in the opposite. Given that our study's announcement days of dividend payout frequency changes oftentimes are the same as the announcement days of financial reports, we find it highly relevant to include this variable to account for abnormal returns stemming from reported unexpected earnings. This variable is not included in the study conducted by Ferris et al. (2010), however, we argue that this variable is of great importance and will help better control for abnormal returns not stemming from changes in dividend payout frequency. The variable (UX) is operationalized as the difference between the reported Earnings Per Share metric ("EPS") minus equity analysts' consensus EPS estimate precisely before the announcement day, scaled by the same estimate. The EPS metric is chosen based on its clear linkage to the valuation of equities in relations to other profit metrics such as Earnings before interest and taxes ("EBIT") that account for profits attributable also to debtholders. This operationalization will serve as a proxy for the capital market's perceived unexpected earnings, or earnings surprise, and the equity analysts' consensus estimates precisely before the announcement will therefore be seen as a proxy for the entire capital market's anticipated EPS for the companies. Potential flaws and drawbacks with this operationalization include the assumption that the equity analysts' consensus estimate of the EPS metric in a good way reflects the entire capital market's

anticipated EPS for the company. However, our stance is that this operationalization serves as the most pragmatic approach with the least amount of assumptions made.

While not based in previous literature, we choose to include a variable measuring *unexpected dividend changes* (UD), which accounts for the difference between expected dividend size and actual reported dividend size. Like with *unexpected earnings*, *unexpected dividends* appear in conjunction with the release of financial statements. The rationale for including this variable is that changes in total dividend size would alter investors valuation of the company, e.g. from a Dividend Discount Model, which would have explanatory value in analyzing what drives abnormal returns surrounding the announcement days. The variable will be operationalized using the reported Dividend Per Share (“DPS”) minus equity analysts’ consensus estimate for DPS precisely before the announcement day, scaled by the same estimate. This variable will serve as a proxy for the capital market’s perceived unexpected dividend. As with the variable unexpected earnings, a potential flaw with the operationalization lies in the assumption that equity analysts’ estimates for DPS do not well represent the entire capital market’s anticipated DPS for the companies.

In addition, we extend the model with a dummy variable that equals 1 when the dividend frequency change entails advancing of payments relative to the previous year, and equals 0 when the change entails prolonged wait for the dividend payments relative to the previous year. The variable (EARLIER) is added based on the reasoning in the Present Value Analysis section, and our rationale is that dividend frequency changes that entail advancement of payments ought to entail an increase of the present value of the total dividend amount of the coming year, which would drive positive abnormal returns on its announcement.

As with the frequency regression study in section 5.1., the method of decile ranking most of our independent variables helps us distinguish the relative size of our observations within each variable, but there are drawbacks to this method that we discussed previously on page 17.

5.5. Valuation regression

Using a linear regression model, this study aims to analyze the impact of dividend payout frequency on company valuation. The test will have its core in estimating the beta coefficient of the independent variable for dividend payout frequency, where a variable for the Market value of a company serves as the dependent variable. To isolate the effect of dividend payout frequency on market valuation the study will add control variables as independent variables in

order to decrease noise in our estimates and increase the explanatory value of our regression. We also exclude companies operating in the Financial and Utilities sectors as in Ferris et al. (2010). The linear regression model will not try to completely explain what drives valuation since we primarily focus on the effect of dividend payout frequency on valuation.

The dependent variable in our regression study will be a variable for market valuation. As in Ferris et al. (2010) we will look at the Market to Book ratio (MARKETBOOK) for this dependent variable, which is operationalized as in section 5.1.

The main independent variable of interest is the variable for dividend payout frequency. As in the frequency regression study described previously in 5.1, we use a logistic function as an independent variable (LOG_DPF) that categorizes dividend-payers in two groups, high-frequency payers (semi-annual or more frequent) that get the value 1, and low-frequency payers (annual) that get the value 0. This variable, which makes it a dummy variable, will help us analyze if high-frequency payers see a higher market valuation than low-frequency paying companies. As in Ferris et al. (2010) we also construct models with the variable for dividend payout frequency which has not been made a logistic function (DPF).

To isolate the effect of dividend payout frequency on company valuation, this study introduces control variables to reduce noise. These independent variables are variables commonly associated with valuation drivers, and include size (SIZE_DEC), growth (ASSETGROWTH_DEC), profitability (ROA_DEC) and legal regime (COMMONLAW). These variables are used by Ferris et al. (2010) and we operationalize them in the same way as presented in section 5.1.

As with the previous regression studies, the method of decile ranking most of our independent variables helps us distinguish the relative size of our observations within each variable, but there are drawbacks to this method, discussed previously in section 5.1.

To control for industry specific characteristics with regards to the abovementioned variables, we include industry fixed effects in our regression, further discussed in section 5.1.

5.6. Interviews

As mentioned in section 4.2, our purpose with conducting interviews is to get an understanding of the “changers” reasons for increasing dividend frequency, and the effects of doing so. To analyze the responses, we have firstly quantified the number of responses by relevant categories to see the frequency distribution. Secondly, we analyze quotes related to the abovementioned categories to further gauge the reasoning of our respondents. The quotes provided in the results

section are chosen based on their informative value with regards to the relevant question or category analyzed.

5.7. Stock return analysis

Interview findings indicate that the primary reason for changing dividend frequency is due to internal cash flow reasons. This is a decision that benefits the company, but it is difficult to quantitatively measure the effect of it. However, we believe that a company that takes a decision like this, is a company that takes many decisions that are for the good of the company, which ultimately benefits the shareholders. To test this reasoning, we analyze the stock performance of our sample of changers and compare it to the stock performance of comparable Nordic peers.

The stock performance is calculated as the total return generated by companies during the time horizon, and thus includes dividends. We choose this measure of stock performance to better compare our sample group against comparable peers that might not be paying out dividends, where a comparison based on stock prices alone would be misleading.

Based on our sample companies' SIC codes, which categorizes industry of operations, and choose Nordic peers with the same two-digit SIC code as our sample companies'. This method gives a comparable peer group based on both geography and industry.

We calculate an equally weighted index for our sample of companies that have changed their dividend payout frequency, for three different time horizons, 2005 to November 2017, 2010 to November 2017, and 2015 to November 2017. For the group of comparable peers, we calculate an index that has the same weightings per industry as our sample companies, for the same time periods. We do this to create a peer index as comparable as possible, where an equally weighted peer index would be more heavily weighted towards certain industries than our sample. We also create sub-indices based on industry group to compare stock return on a more granular level.

When testing our hypothesis, we will look at if the indices of companies that have changed their dividend payout frequency have outperformed the indices consisting of comparable peers, both at an aggregate and granular industry group level.

6. Empirical results and analysis

In this chapter we present and analyze the results from the quantitative studies outlined in Chapter 5.

6.1. Frequency level regression

In Table 4 below, we outline the results from the logistic regression aiming to analyze what variables are characteristic for companies with a high dividend frequency. The dependent variable (LOG_DPF) is the logistic function of dividend frequency, where companies with high dividend frequency (semi-annual or more frequent) get the value 1, else 0. To show incremental changes in the models' explanatory value, changes in variable estimates and test their robustness, we illustrate 10 different models with different combinations of independent variables. All models include industry fixed effects in order to control of potential industry specific effects on dividend payout frequency.

The regressions yield results mostly in line with the hypothesis and previous literature, with some difference that will be discussed below.

The variable for legal regime, COMMONLAW, has a positive and statistically significant influence at the 1% level, meaning that companies operating in legal regimes with common law tend to have higher dividend payout frequencies than companies operating under civil law.

The estimates for the variables OPINC_DEC and SD_OPINC_DEC are different from our hypothesis and previous literature. While we hypothesized that dividend payout frequency would have a positive relation to OPINC_DEC and a negative relation to SD_OPINC_DEC our regressions yield opposing results. Our results suggest that companies tend to have a lower dividend frequency the larger they are in terms of operating income, and tend to have a higher dividend frequency the more volatile operating income they have. One possible explanation to why the result found is in contrast to our hypotheses is found in the interview sections as it is explained that companies with volatile earnings, in countries where the board of directors can be mandated to distribute earnings, benefit from more frequent dividend payments since they then have to option to stop payment of dividends if their business develops poorly. These abovementioned variables are significant in most of the models, but see a far smaller economic magnitude in the model than the COMMONLAW variable.

Table 4: Results from logit regressions

Coefficient Estimates	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
COMMONLAW	0.885***			0.887***		0.887***	0.854***	0.854***	0.859***	0.706***
OPINC_DEC		-0.001		-0.003*	-0.001	-0.004**	-0.005***	-0.004**	-0.006**	-0.004
SD_OPINC_DEC			0.002	0.002	0.003	0.003	0.007***	0.007***	0.007***	0.008**
DIVEARN_DEC						0.005***	0.005***	0.005***	0.003	0.007**
SIZE_DEC							0.014***	0.014***	0.013***	0.012***
ASSETGROWTH_DEC							0.001	0.001	0.002	0.004
ROA_DEC								-0.001	-0.003	-0.006
CASHDIV_DEC									-0.008***	-0.007***
QRTCF_DEC										0.003*
Adjusted R2	0.206	-0.002	-0.002	0.207	-0.002	0.209	0.228	0.228	0.224	0.104
Number of observations	3,442	3,441	3,434	3,434	3,434	3,428	3,426	3,426	2,981	1,599

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

The models include industry fixed effects

LOG_DPF – Logistic function of dividend payout frequency for company i in year t , where dividend frequencies higher than annually get the value 1, else 0

COMMONLAW – Dummy variable taking the value 1 when companies operate under Common Law, else 0

OPINC_DEC – Arithmetic mean of the operating income for year $t-1$, $t-2$, $t-3$, and $t-4$, decile ranked based on that year's observations

SD_OPINC_DEC – Arithmetic mean of the standard deviation of the operating income for year $t-1$, $t-2$, $t-3$, and $t-4$, decile ranked based on that year's observations

DIVEARN_DEC – Amount of dividends paid divided by net income for company i in year t , decile ranked based on that year's observations

SIZE_DEC – Book value of assets in Swedish kronor for company i in year t , decile ranked based on that year's observations

ASSETGROWTH_DEC – Growth in the book value of assets between year t and $t-1$ for company i , decile ranked based on that year's observations

ROA_DEC – Return on Assets calculated as net income for year t divided by the book value of assets for year t , decile ranked based on that year's observations

CASHDIV_DEC – End of previous year's cash level divided by the total amount of dividends paid, decile ranked based on that year's observations

QRTCF_DEC – Average of the highest quarterly operating cash flow minus the lowest, scaled by the latter, for $t-1$ and $t-2$, decile ranked based on that year's observations

This table contains the regression results, including coefficient estimates, significance codes, as well Adjusted R2 and observation count.

The DIVEARN_DEC variable shows the expected positive sign and is significant in all instances. This shows that companies with higher dividend payout ratios also tend to have a higher dividend payout frequency, which can be argued to increase a company's so-called dividend profile.

As in previous literature we find that the variable SIZE_DEC shows a positive sign and is significant at the 1% level. This finding would support the idea that larger companies tend to have a higher dividend payout frequency than smaller companies, in contrast to OPINC_DEC.

The variable ASSETGROWT_DEC shows no significant estimates in our models, which is why we cannot with certainty analyze its effect on the dividend payout frequency for our sample.

As with the ASSET_GROWTH_DEC variable, the variable for profitability, ROA_DEC, did not show any significant results, which is why we cannot with certainty analyze its effect on dividend payout frequency in this model.

Adding the CASHDIV_DEC in Regression 9 lowers adjusted R^2 slightly, but the variable proves to be statistically significant at the 1 percent level. The negative sign of the coefficient is in line with our notion since it suggests that companies that are less likely in need of having to raise external financing to pay their dividend are less likely to pay dividends semi-annually or quarterly.

Because we lack data on quarterly operating cash flow for many companies, R^2 decreases significantly when we add the QRTCF_DEC variable. The variable is however statistically significant at the ten percent level and, although the coefficient is fairly small, counterintuitively suggests that companies that have more varying quarterly operating cash flows throughout a year are more likely to pay dividends semi-annually or quarterly.

In all, our regression models find that internal, firm specific, characteristics as well as external factors such as legal regime have explanatory value in explaining companies' dividend payout frequency levels. Looking at economic magnitude, our models suggest that a key driver in determining the dividend payout frequency is the legal regime under which companies operate, where legal regimes with common law tend to have a higher dividend payout frequency than companies operating under civil law.

Given our results, we can answer our hypotheses H1-H2. We can accept our H1 hypothesis based on the results of the DIVEARN_DEC variable, which is positive and significant at the 5%, and sometimes 1%, level. This would suggest that companies whose stock has a higher payout ratio, and a so-called dividend profile, are more likely to have a high

dividend frequency than companies whose stock has less of a dividend profile. We do however have to reject our H2 hypothesis that states that companies with high dividend frequency tend to have less volatile operating cash flows than companies with low dividend frequency, given that our variable `SD_OPINC_DEC` is significant at the 5% level and positive, where we expected the opposite sign.

6.2. Present value analysis of dividends

When comparing the present value of the dividends of companies that after the change in frequency pay dividends later than before with the present value of their expected dividend(s), we find that the present value on average decreases with 3%. As illustrated in Figure 4, the decrease of 3% comes from a 4% decrease due to lower discount factor and a 1% increase due to larger total dividend. The first effect is expected given the definition of this group of changers. If the result had been in line with hypothesis H3, the decrease in present value from a lower discount factor would have been off-set with a higher dividend. This is however not what we find.

When studying how present values of dividends have changed for companies that following a change in frequency pay dividends earlier than before, we find that the present values on average increase with 26%, mainly due to higher total dividends. This is illustrated in Figure 5. As expected given the definition of this group of changers, the split has also had a positive effect on present values through a higher discount factor than before due to earlier payments. However, when interpreting the results from the present value analysis of “earlier changers” it must be remembered that new dividends are compared to the size of dividends the previous year, assuming no growth in dividends.

From the tests in this section, we conclude that we can reject hypothesis H3 since present values on average changes. When dividends are paid later than before, investors are on average not compensated enough for the time they have to wait to receive part of the dividends. When dividends are paid earlier than before, dividends for the full year are on average increased substantially compared to the previous year and dividends are also on average paid earlier than before, investors benefit much from this type of change. Given these differences, we expect to see positive capital market reactions to dividend frequency changes when companies announce that they will pay dividends earlier than before, and negative reactions when dividends will be paid later than before.

Figure 4

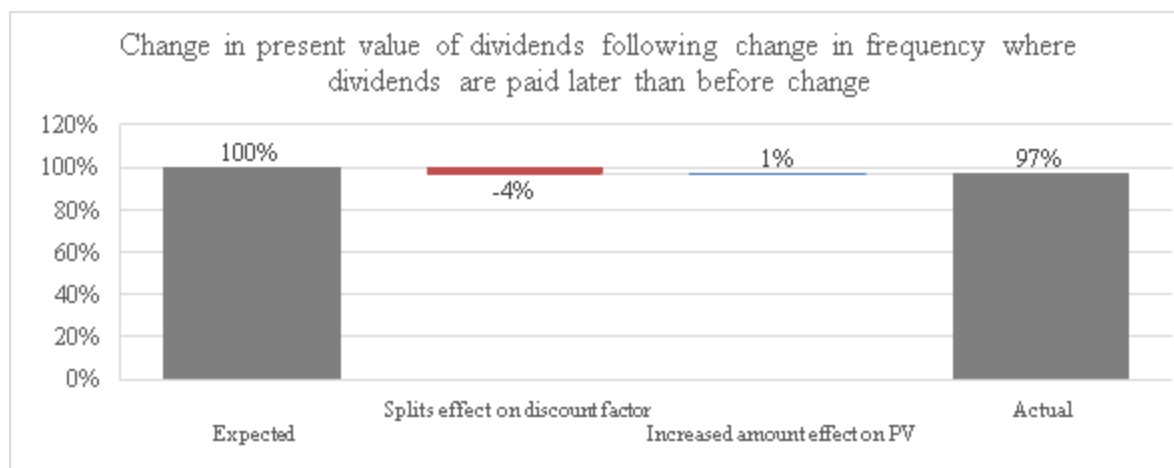
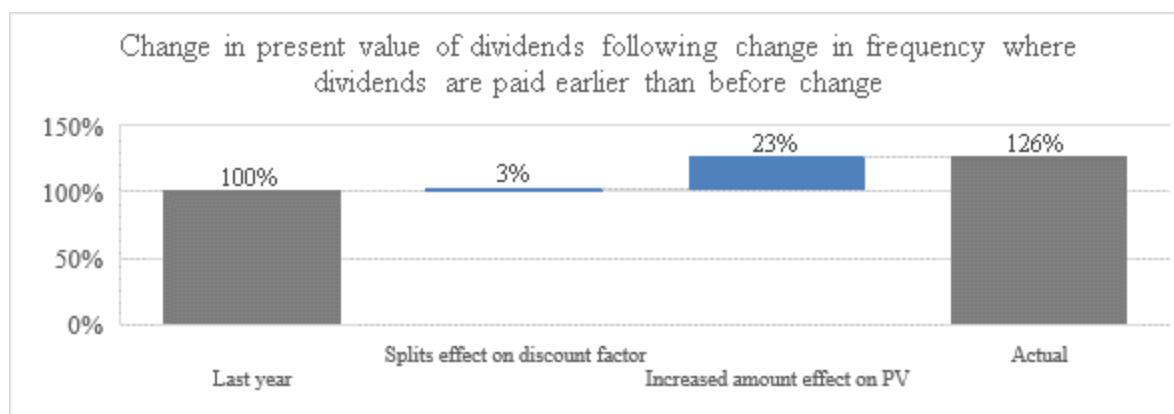


Figure 5



These figures illustrate how an increase in dividend frequency affects the present value of the upcoming year's dividends through i) the discount factor and ii) the total dividend amount. Average effects are shown for postponing changers in Figure 4, where actual dividend amounts are compared to analysts' estimates, and for advancing changers in Figure 5, where actual dividend amounts are compared to previous years dividend.

6.3. Event study of abnormal returns

To examine if the announcement of a proposed change in dividend frequency has any effect on the stock price of the announcing company, we conduct the event study of abnormal returns described in Section 5.2. Conducting the event study of abnormal returns will contribute to the purpose of the thesis by partly testing hypotheses H4 and H5.

Aggregated cumulative abnormal returns for all frequency changers during the event window $\tau = -5$ to $\tau = 5$ are illustrated in Figure 6, and the graph shows that returns on the

event days on average are positive. Statistics for the aggregated CARs during the different event windows are provided in Table 5, and aggregated returns are positive and statistically significant at the 1% level for the four shorter event windows, but not significant when looking at returns during the 250 days following the events.

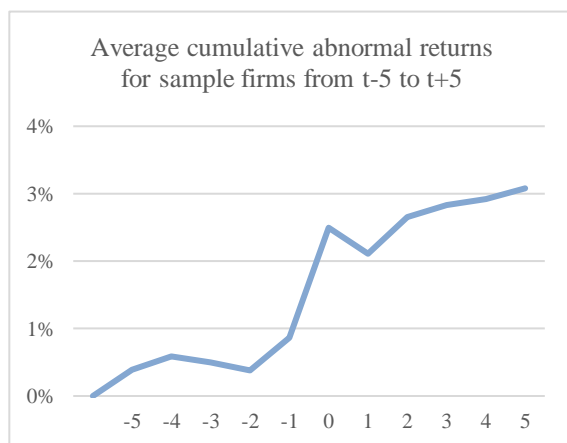
The cumulative abnormal returns for each individual frequency changer (see Section 4.1. for further info on the changers) during the event window $\tau = -5$ to $\tau = 5$ are illustrated in Figure 7 and the CARs during the five examined event windows are together with significance levels provided in Table 5. Using a 5% significance level and looking at abnormal stock returns of the underlying stocks for the 34 changes on the event day, 10 show significantly positive abnormal returns and 5 show significantly negative abnormal returns. As we increase the event window length to 1, 3, and 5 days prior to and after the event, the number of significant events decrease but we still find more positive CARs than negative ones. Few CARs in the event windows from 5 days prior to the event to 250 days after the event are statistically significant, and there is no return value for 10 events since less than 250 days has passed since those event days.

As noted in Section 5.3., we are aware that there may be clustering of the variances used in our sample. There is no overlap of event days, but the event days for Finnish listed companies Aspo, Rapala, and Ramirent are consecutive and the event windows that are longer than one day do thereby overlap. Further, Finnish listed Fiskars' event day falls five days prior to Aspo's, which leads to overlapping event windows of size eleven days. Looking at the return 250 days after the events, there is a lot of overlapping. We note here that we are aware that our results are less robust given these overlaps, but have not adjusted for them given the scope of our thesis.

Ferris et al. (2010) only reports aggregated abnormal returns and not abnormal returns on firm-by-firm basis. As we do, they find positive abnormal returns for the announcement of dividend frequency increases that are statistically significant at the one percent level.

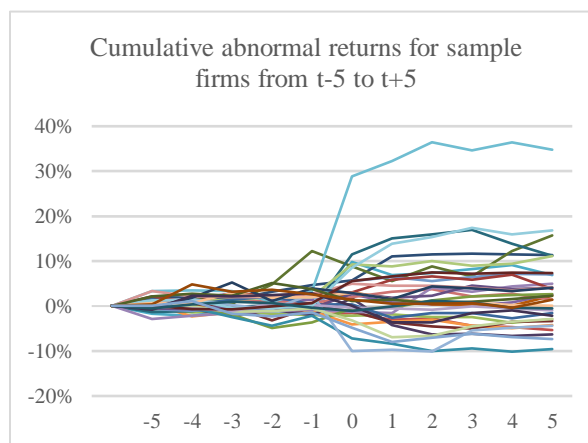
Although our aggregated returns are significantly positive, it must be stressed that in almost all cases, the announcement of a proposed increased frequency of dividend pay-outs (the event day) coincides with the release of quarterly earnings. We cannot yet accept or reject H4 because we do not know if the observed abnormal returns are driven by dividend frequency changes. Further, we cannot test H5 since we have not observed any decreases of dividend frequency. To understand what drives abnormal returns in our event windows, we examine abnormal normal returns in the next section using two different cross-sectional models.

Figure 6



This figure illustrates the average CAR for our sample firms from t-5 to t+5

Figure 7



This figure illustrates our samples' individual CARs from t-5 to t+5

Table 5: Average CAR following dividend frequency change announcement

	t	t-1 to t+1	t-3 to t+3	t-5 to t+5	t-5 to t+250
Average	0.016***	0.017***	0.022***	0.031***	-0.028

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

This table summarizes the average CAR estimates surrounding the announcement dates

6.4. Cross-sectional regression of abnormal returns

To test if the cumulative abnormal returns during the event windows are driven by the announcement of a proposed increase in dividend frequency, we run the two regressions described in Section 5.3.; Regression 1 that is similar to the one used by Ferris et al. (2010) and Regression 2 in which we add three variables of our own. We do not include the event window from $\tau = -5$ to $\tau = 250$ in the regression because the CARs from the previous event study are insignificant, and we would have to look at very different regressors if doing such an analysis. After testing what variables drive abnormal returns, we will reject or accept hypothesis H5.

Table 6 presents the results from Regression 1. The only variable that is statistically significant at the five percent level is SIZE_DEC which has a negative coefficient for the event windows of length 3, 7, and 11 days. The sign of the coefficient implies that larger companies on average have lower abnormal returns in our event windows. One interpretation of the negative coefficient is that larger companies are generally covered by more analysts and there is less likelihood for unexpected news compared to smaller companies. The intercept coefficient is positive and statistically significant at the ten percent level for the two longest event windows. The main independent variable of interest in this regression is the DFC variable, which in the study by Ferris et al. (2010) is positive and significant in all instances.

Table 6: Results from cross-sectional regressions, Regression 1

Coefficient Estimates	AR (0)	CAR (-1, +1)	CAR (-3, +3)	CAR (-5, +5)
Intercept	0.124	0.167	0.224*	0.205*
DFC	-0.016	-0.015	-0.004	0.008
SIZE_DEC	-0.013	-0.020**	-0.026**	-0.029***
DY_CHANGE	1.112	0.771	0.239	-0.391
MARKETBOOK	-0.009*	-0.009	-0.007	-0.009
ROA	0.291	0.229	0.210	0.301
VOL	0.111	0.196	0.124	0.255
Adjusted R2	0.162	0.229	0.179	0.320

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

CAR – Cumulative abnormal return for company i in period t . **DFC** – Change in total number of dividends paid per year. **SIZE_DEC** – Rank decile of the book value of assets in Swedish kronor for company i in year t . **DY_CHANGE** – Implied change in dividend yield following the change in dividend frequency, calculated as new annual dividend amount divided by the stock price immediately before the announcement minus the dividend yield prior to the announcement. **MARKETBOOK** – Market to Book ratio at the time of announcement. **ROA** – Return on Assets for year t . Calculated as net income for year t divided by the book value of assets for year t . **VOL** – Annualized stock price volatility based on the period -260 to -10 days before the announcement day.

This table contains the regression results, including coefficient estimates, significance codes, as well Adjusted R2.

The results from Regression 2 are presented in Table 7 and the positive intercept coefficient is no longer statistically significant. The SIZE_DEC variable is still statistically significant at the five percent level for the event windows of length 3, 7, and 11 days. The added UX variable is not statistically significant in any event windows, which could be due to the few observations with unexpected earnings. We do however see that for the variable UD that this variable is significant between the 5-10% levels for the all event windows except on the announcement date alone. That the variable is a strong driver for cumulative abnormal returns is expected since dividends are a strong driver for stock prices. In our longest event window, the coefficients for the variable VOL is statistically significant at the ten percent level and positive. While not statistically significant, the variable EARLIER show tendencies to be positive, indicating that companies advancing their dividend payments following changes in dividend frequency see an increased abnormal return on its announcement, supporting the findings in section 6.2.

Comparing Regression 1 to Regression 2, the most striking difference is the large increase in R^2 when adding the variables EARLIER, UX, and UD. The increase in R^2 suggests that the variables we add are good regressors for the abnormal returns. The same difference appears when comparing our results to the ones of Ferris et al. (2010). Our R^2 in Regression 1 is similar to theirs, but much higher in Regression 2. Ferris et al. (2010) find that an increase in dividend frequency drives positive abnormal returns, and a decrease in dividend frequency

Table 7: Results from cross-sectional regressions, Regression 2

Coefficient Estimates	AR (0)	CAR (-1, +1)	CAR (-3, +3)	CAR (-5, +5)
Intercept	0.103	0.132	0.169	0.145
EARLIER	0.012	0.021	0.035	0.040
SIZE_DEC	-0.013*	-0.019**	-0.022**	-0.024***
MARKETBOOK	-0.006	-0.005	-0.000	-0.003
ROA	0.095	-0.085	-0.253	-0.142
VOL	0.121	0.227	0.193	0.344*
UX	0.035	0.045	0.052	0.029
UD	0.149	0.205*	0.258**	0.232**
Adjusted R2	0.276	0.457	0.519	0.529

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

EARLIER – Dummy variable with value 1 when dividend policy change entails advancement of dividend payments relative to year before change, else 0

UX – Incorporated if the announcement is made in conjunction with the release of financial reports. Calculated as the reported EPS for the reported period divided by the consensus EPS estimate right before the announcement, minus 1.

UD – Incorporated if applicable as with UX. Calculated as the reported future year's total dividend per share divided by the consensus estimate right before the announcement, minus 1.

This table contains the regression results, including coefficient estimates, significance codes, as well Adjusted R2.

drives negative abnormal returns. As the intercept is positive in all regressions, it may very well be that the dividend frequency increases in our sample drive abnormal returns, but it is difficult to test when we do not have a variable for changes.

We conclude that we cannot find the announcement of a proposed frequency change to be statistically significant, and that the abnormal returns in our event windows primarily are explained by dividend surprises. Given these regression results, we cannot accept or reject our hypothesis H4 that the capital market's reaction to a dividend frequency increase is positive and statistically different from zero, but acknowledge that the sign of the intercept is positive as would be expected if there are positive returns. Due to lack of events of decreases, we cannot test H5 that the capital market's reaction to a dividend frequency decrease is negative.

6.5. Valuation regression

We want to directly test if dividend payout frequency affects market valuation. We construct a multivariate regression where the dependent variable for market valuation, MARKETBOOK, is tested against dividend payout frequency measured as the number of dividends paid per year (DPF) and the logistic function taking the value one when the frequency is semi-annual or higher (LOG_DPF). As in previous regressions and literature, control variables are added to

further isolate the effect of dividend payout frequency on the dependent variable, and to add explanatory value to the model.

As illustrated in Table 8 below, we find no significant coefficients for LOG_DPF or DPF in any of our models. This may have to do with the sample size not being large enough for us to draw any significant conclusions, or it may be that for our Nordic sample that dividend payout frequency does not affect market valuation. It is interesting however to connect these results to those in Ferris et al. (2010) where it was found that dividend payout frequency does affect market valuation in a global setting. A difference between our study and Ferris et al. (2010) is however that they include non-dividend-paying companies in their regression, while we test explicitly dividend payout frequency between dividend-paying companies only. In this difference lies a potential explanation to why Ferris et al. (2010) saw significant results.

We see in our models that significant independent variables include ASSETGROWTH_DEC and ROA_DEC, which show the expected positive signs that would suggest that companies that are growing faster and that are more profitable see a higher market valuation.

The remaining variables for SIZE_DEC and COMMONLAW have no significant coefficient estimates, which is why we cannot confidently assess their impact on market valuation. They however indicate that larger companies see a higher market valuation, while companies operating under common law see a lower market valuation, which might be due to the lower investor protection seen in these legal regimes.

To conclude, we can neither reject nor accept the H6 hypothesis that the market valuation of companies that have high dividend frequency is greater than for companies with lower dividend frequency, given that our independent variables for dividend frequency show no significant results.

Table 8: Results from Market-to-Book regression

Coefficient Estimates	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
LOG_DPF	-0.213		-0.094		-0.125		-0.045		-0.039	
DPF		-0.232		-0.188		-0.210		-0.170		-0.127
SIZE_DEC			-0.054	-0.051	-0.051	-0.048	-0.052	-0.048	0.001	0.003
ASSETGROWTH_DEC					0.141***	0.142***	0.141***	0.142***	0.042	0.043
COMMONLAW							-1.388	-1.105	-1.795	-1.586
ROA_DEC									0.509***	0.508***
Adjusted R2	-0.003	-0.003	-0.003	-0.002	0.000	0.001	0.000	0.000	0.029	0.029
Number of observations	3,375	3,375	3,375	3,375	3,366	3,366	3,366	3,366	3,363	3,363

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

The models include industry fixed effects

MARKETBOOK – Year-end market capitalization dividend by the reported year-end book value of equity.

LOG_DPF – A logistic function that categorizes dividend-payers by high-frequency payers (semi-annual or more frequent) that get the value 1, and low-frequency payers (annual) that get the value 0.

DPF – Actual dividend payout frequency, which can take the value 1, 2, or 4.

SIZE_DEC – Year-end reported book value of assets, converted to Swedish Krona, decile ranked based on that year's observations.

ASSETGROWTH_DEC – Growth in the book value of assets between year t and t-1, decile ranked based on that year's observations.

COMMONLAW – Dummy variable taking the value of 1 when a companies is operating under common law and 0 otherwise.

ROA_DEC – Net income dividend by the year-end book value of assets, both for period t, decile ranked based on each year's observations.

This table contains the regression results, including coefficient estimates, significance codes, as well Adjusted R2 and observation count.

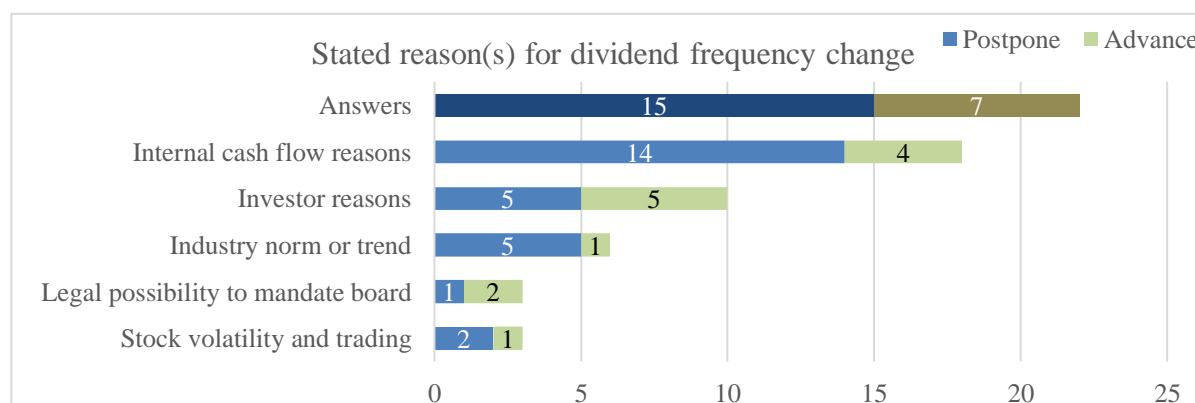
7. Interview findings and analysis

We have through interviews gathered an understanding of why companies choose to switch dividend frequency, what the perceived effects of the changes have been, and what some opinions about the topic are in general. In the sections below, we summaries our findings. Related to this chapter, a short case study of NCC's decision to change dividend frequency is found in the appendix. Through the case, many of the points touched upon below will be given additional flavor.

7.1. Reasons for change of dividend frequency according to changers

When going through interview answers, we categorize the stated reasons for changing dividend frequency into five different categories (note that several companies' answers fall into more than one category): *Internal cash flow reasons*, *Investor reasons*, *Industry norm or trend*, *Stock volatility and trading*, and *Legal possibility to mandate board*. As illustrated in Figure 8, the most commonly stated reason for changing dividend frequency is due to internal cash flow reasons. 93% of postponing changers (see definition in section 4.1.) cite internal cash flow reasons as a reason for change, and 33% cite investor reasons. On the other hand, 57% of advancing changers cite internal cash flow reasons, and 71% investor reasons. Comparing these numbers suggest that postponing changers do it mainly due to internal cash flow reasons, while advancing changers are more likely to do it due to investor reasons. Below follows more detailed descriptions of the different reasons and related quotes from interviews.

Figure 8



The number of changers that have cited each category of reasons for increasing dividend frequency. Postponing (advancing) refers to those changers that postpone (advance) part of their dividend when increasing frequency.

Internal cash flow reasons

Paying dividends is a cash outflow for dividend paying firms. In our sample, dividend paying firms on average pay 18% of operating cash-flow in dividends. Dividing total yearly dividends with the average of beginning-of-year and end-of-year cash levels, the average dividend-paying firm has a ratio of 82% and the median dividend-paying firm has a ratio of 49%. Given the substantial size of total dividends in relation to operating cash-flow and cash levels for a dividend paying firm, the payment of dividends has a large effect on a firm's cash flow and it is not unusual that companies use debt to finance dividends. By splitting the payment of a dividend into more frequent but smaller payments, a company can get a smoother cash-profile over the year by better matching payments of dividends with cash flow from operations, which results in lower financing costs.

Better matching of dividend payments with cash-flow after operations and investments is also the most commonly quoted reason for changing dividend frequency among our interviewed firms. For an increase in dividend frequency to lead to this effect, it is however important that the company's cash flows are distributed fairly even throughout the year or very differently compared to when dividends are paid prior to a potential change. This point is brought forward by the CFOs of Atlas Copco and Entra:

“The intention is to get a payment of dividend that better correlates with when we generate the cash flow - relatively even throughout the year”

– Hans Ola Meyer, CFO, Atlas Copco (“Postponing changer”)

“The decision was based on internal considerations and was not driven by investors. The move to semi-annual dividends align Telenor's competitive shareholder remuneration with the company's cash flow profile throughout the year, thereby optimizing funding flexibility and cash management in the Group”

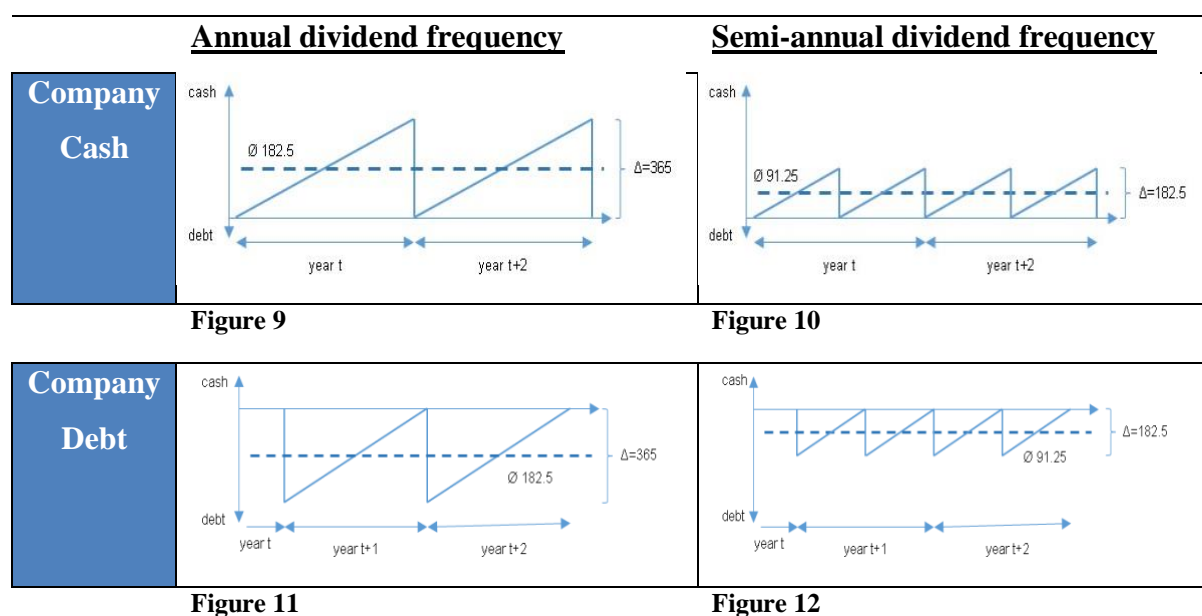
– Helge Oien, IR, Telenor (“Postponing changer”)

When companies such as Atlas Copco and Telenor are able to better align its dividend payments with its cash flow, the level and volatility of its net debt position is reduced, which leads to reduced financing costs, which would arguably lead to a higher share price.

To illustrate the effect that an annual versus semi-annual dividend frequency has on a company's cash flow, we use the fictive Company Cash as an example. To keep the example simple, we assume that Company Cash earns SEK 1 in cash every day, and has no investment

needs. At the end of each year, all of Company Cash's yearly earnings of SEK 365 are distributed to its shareholders. Since Company Cash's net cash position at the start of the year is SEK 0 and increases linearly to SEK 365 at the end of the year, the average net cash position is SEK 182.5. Figure 9 illustrates the net cash profile of Company Cash. Now, assume instead that Company Cash pay dividends of SEK 182.5 twice a year, half-way into the year and at year-end. The total yearly dividend amount is unchanged, but the average net cash position is now SEK 91.25, and the difference between the smallest and largest net cash positions is in absolute terms reduced in half. This is illustrated in Figure 10.

To extend the example to a company that finances dividends with debt and not cash, we introduce Company Debt, that just as Company Cash earn SEK 1 in cash every day. At the end of year t , Company Debt decides to start distributing dividends annually, but has at that point SEK 0 in cash since it has made some investments in the past. To finance the distribution of the year t earnings of SEK 365, Company Debt takes on debt. Hence, at the beginning of year $t+1$, Company Debt has SEK 365 in debt. Assuming that the debt is interest-free and that the company does not have to make any further investments, Company Debt's debt will be paid off at the end of year $t+1$ when it is time to pay dividends again. The average net debt position for Company Debt is thereby SEK -182.5, which is illustrated in Figure 11. If Company Debt at the end of year t instead decides to start paying dividends semi-annually, the company will pay a dividend of SEK -182.5 at the end of year t and takes on debt worth the same amount. Halfway into year $t+1$, the debt will be paid off, but it is then time to distribute earnings again.



These figures illustrate schematic examples of how dividend frequency changes affect net debt levels

Paying dividends semi-annually, Company Debt's net cash position becomes SEK -91.25 and the volatility of Company Debt's debt position decreases. This is illustrated in Figure 12. What both of these examples show is that when a company has an evenly distributed cash flow throughout the year, the level of its average net debt position will decrease and the volatility of the same will decrease, regardless of if the dividend is financed with cash or debt.

If we relax the assumption above of interest-free debt, it becomes clear that by getting a lower and less volatile level of debt required for dividends, a company can lower its financing costs by paying less interest. Also, some companies finance their dividends with debt available through revolving credit facilities, and by decreasing the level of debt needed to be extracted from the facilities, the size of the facilities could ultimately be reduced. Another benefit from having a less need of debt to finance dividends that has been quoted is that it is good for relationships both internally and with banks when the treasury department to a lesser extent have to chase liquidity to pay dividends.

Although perhaps not as obvious, there are costs related also to saving cash that is to be paid as dividends. When cash is held in the company and not distributed to shareholders, the shareholders suffers an opportunity costs since they cannot use the money to make other investments with. This results in an increased discount rate, which in turn lowers the share price of the company. Also, as noted by Ken Lagerborg, Group Treasurer for Atlas Copco, *"saving cash is associated with credit risk, even if the saving is with banks"*, and when risk increases, investors required return on capital should increase, decreasing the value of the company's future cash flows and thereby share price.

As argued above, regardless of how a company's dividend is financed, its share price should increase if the payments of dividends are mapped with the cash flow of the company. Christian Cederholm of Investor AB, an industrial holding company with significant ownership in several companies that have increased dividend frequency, such as Atlas Copco, Electrolux, Husqvarna, and Wärtsilä, argues that the decision to increase dividend frequency for a firm with relatively stable cash flows throughout the year will lead to increased shareholder value:

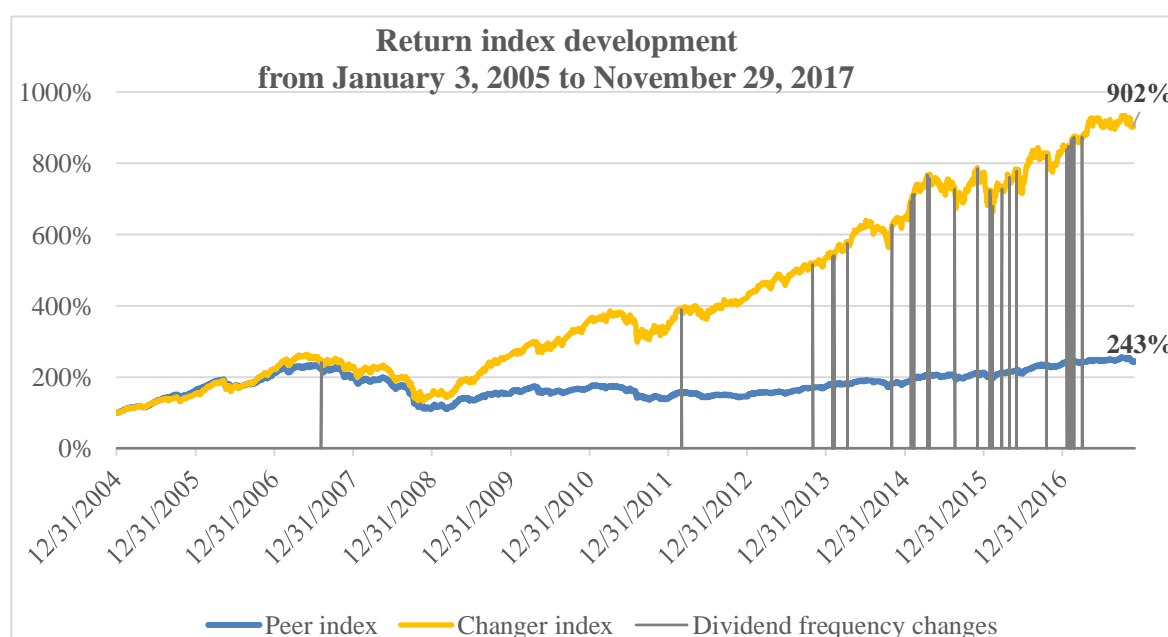
"In the end, the decision to increase dividend payout frequency is for the better for the company since it leads to a more effective liquidity management, and decisions that are for the better of a company will sooner or later benefit shareholders by increasing share prices"

- Christian Cederholm, Co-Head Patricia Industries, Investor AB

By better matching dividend cash flows with operational cash flows through an increased number of dividends, a large increase in dividends can also occur earlier than without an increase. Before their annual general meeting in 2017, the board of directors of Com Hem proposed an increase of its yearly dividend from SEK 1.5 per share to SEK 4 per share. To make the large increase possible, the board also proposed that the dividend be split into two payments in March and September. Com Hem's CFO Mikael Larsson explains as the motive to split the dividend "to faster distribute cash flow to shareholders than waiting 6 more months". By dividing the payment of the dividend into two installments, Com Hem was able to use liquidity from the time between the two payments to finance the latter payment.

Although a more efficient internal cash management's direct effect on share prices is not obvious, we hypothesize that a company that is governed by persons who take many decisions like this that are for the better of the company, will in the long run outperform its peers. To test this hypothesis, we compare the stock return of the changers compared to its peers as described in Section 5.7. Figure 13 shows that the Changer index has outperformed its Peer index substantially during the last 13 years, suggesting that they are well managed companies. For further details on the return during different time periods and for returns on industry levels, refer Table 11 in the appendix shows the index developments for the changers by industry versus the index development of peers by industry.

Figure 13



This figure illustrates how an index for our sample of changers have outperformed an comparable index, measured as total return between January 2005 to November 2017

Investor reasons

Second to internal cash flow reasons, meeting investors' demand for more frequent dividend payments and/or distributing earnings faster to investors are the most commonly cited reasons for increasing dividend frequency. Apart from investors demanding more frequent dividends due to a belief that facilitating a more efficient cash management, as argued above, will lead to an increase in share prices over time, a couple of tangible investor related reasons have been quoted by frequency changers as to why they have changed frequency. These reasons include providing owners with a stable cash flow and strengthen its dividend stock profile.

A number of companies quote that a regular stream of dividends is something that is appreciated by its owners. Entra and AF Gruppen are two companies that quote this as a reason for increasing dividend frequency:

"Many of our generalist fund investors appreciate a more regular dividends stream"

– Anders Olstad, Entra ("Advancing changer")

"We have stable long time investors, hence they should have a stable and predictable return on their investments without buying and selling shares"

– Sverre Hærem, AF Gruppen ("Advancing changer")

Although investors in theory, disregarding transaction costs and taxes, can create their own dividend scheme by selling and buying shares, it is evident that not having to do so is demanded by investors.

In addition to meeting current owners demand for a regular dividend stream, a company can attract new investors by strengthening its profile as a dividend stock. By increasing dividend frequency, a company strengthens its profile as a dividend stock. This is quoted as a reason by Tryg to move to more frequent and earlier dividend payments:

"We moved from yearly to half-yearly dividends already in 2016 precisely to highlight the dividend profile of our share, while we moved to full quarterly dividend from 2017, the overall yearly amount of the dividend has not changed"

- Gianandrea Roberti, Head of IR, Tryg ("Advancing changer")

Being a dividend stock with frequent dividend payments can be especially attractive for foreign investor that are used to the practice of stocks paying dividends quarterly or semi-annually. This argument is put forth by Com Hem's CFO Mikael Larsson:

"It is common with several dividend payments per year in international telecom/cable companies, and we have many international owners who are very used to this"

- Mikael Larsson, CFO, Com Hem ("Postponing changer")

Apart from having current international owners who like more frequent dividends, as in the case of Com Hem, changing dividend frequency may also attract new investors from countries that are used to receiving dividends frequently and from yield funds that require that dividends are paid with a certain frequency. For example, NCC's CFO Mattias Lundgren has experienced increased interest from American funds following the change to a more frequent dividend frequency (See Section 11.1, NCC case study, for further description).

Industry norm or trend

Some companies cite an industry norm or trend as reason for their change in frequency. An example of a company using industry norm as reason to change is the quote above from Mikael Larsson, CFO at Com Hem, about many "international telecom/cable companies" pay dividends more often than annually. Another example of industry norm affecting the dividend frequency decision is Kalle Sundström, CEO of Stora Enso, using it as a reason not to change frequency (see Section 7.4.).

That several companies use "trend" as a reason to change frequency is something that we view as proof that the practice is becoming accepted and that reasons for the change does not have to be explained much as investors understand the reasoning behind the change. An example of a changer using this reason is Wärtsilä, which in its 2016 Annual report writes that *"the dividend will be paid in two instalments, in line with growing practice"* (p.163). Although Wärtsilä's board of directors most certainly had further reasons to change dividend frequency than just due to "growing practice", the statement serves as a proof of that the concept is becoming accepted as a positive decision that does not necessarily have to be justified. Another example of using trend as a reason for change comes from Kristian Tammela at Fiskars Investor Relations department as an answer on the question what made them change frequency:

"Semiannual dividend payments evens out the change in cash compared to one large installment. Our Board also sees it as a part of a general trend"

- Kristian Tammela, IR, Fiskars ("Advancing changer")

We view the use of "Trend" as a reason for changing dividend frequency as a sign that some companies feel more comfortable making a decision of this kind when others already have paved the way, rather than trying something new themselves.

Stock volatility and trading

A few companies use wanting to decrease the trading in- and volatility of its stock as a reason to increase dividend frequency. An example of this is AF Gruppen:

"With annually dividends only we experienced increased purchase of shares just before dividends and an increased sales after, with a corresponding increased and reduced share price respectively."

- Sverre Hærem, CFO, AF Gruppen ("Advancing changer")

One source of increased trading during the time leading up to the record day of dividends, is that it is not obvious how dividends should be priced into share prices and different types of owners may or may not want to receive dividends due to for example tax reasons. Higher share price volatility in connection to dividend payments can decrease the value of company by adding more risk to share price, as well as attracting speculators, such as hedge funds, as owner, rather than favoring long term owners. Companies may want a more stable share price in case they are to repurchase shares or issues new shares.

Legal possibility to mandate board / Possibility to adjust the dividend to operational and financial circumstances

As discussed in Section 4.3, the AGM in Norway, Finland, and Denmark may mandate the board of directors to decide on dividend throughout the year. Having that ability is a driver for changing dividend frequency since it "provides more flexibility to adjust the dividend to circumstances", as described by Sören Nielsen, VP, IR & Corporate Planning of DFDS. These circumstances could be both good and bad, giving the board the mandate to stop payment of dividends completely, or increase the dividend if there is reason for doing so.

One company that stressed the ability to stop payment of dividends as a reason for changing frequency is TGS, a provider of geoscientific data products and services to the oil and gas industry, which since 2016 has distributed dividends quarterly instead of annually. TGS' CFO Sven Larsen comments as follows on the decision to increase dividend frequency:

“[More frequent payments are] particularly important in a cyclical and volatile business like ours. It means that we can pull the break on the dividend during the year if we see that the business is developing in a worse manner than expected, whereas previously we only had one chance per year to get things right.”

- Sven Larsen, CFO of TGS (“Postponing changer”)

Having the possibility to decide not to distribute earnings during a year certainly has a positive effect on a company since it can choose to use cash for better uses than dividends if the company has problems operationally or financially, or if unexpected investment opportunities arise.

7.2. Negative considerations by changers

Although few significant downsides with an increased dividend frequency have come to our knowledge, some negative considerations have been presented by interviewees. These include shareholders not getting their dividend as expected, some administrative costs, and that in Sweden, all of a year's dividends are booked at the payment of the first dividend.

A few of the companies that postponed their dividend payments bring forth considerations regarding postponing part of shareholder's dividend. On the question regarding consideration in favor of not changing frequency, Agneta Wallmark of Telia answers:

“Expectations from our shareholders to receive the whole dividend already in April”

- Agneta Wallmark, Group Treasurer, Telia (“Postponing changer”)

Similar considerations were made by NCC, described in the case in the Appendix.

That there are some administrative costs related to a higher dividend frequency, but that there are no real negative sides of making a change is put forth by Anders Olstad, CFO of Entra: *“None, really. A small, administrative burden, but very manageable”*. Although some

administrative costs from a higher dividend frequency exist, they are negligible in relation to the positive internal effects.

Lastly, a possible negative consideration related to paying dividends more often than annually in Sweden is that a company's shareholder's equity is reduced with the total amount of the year's dividend payments when the first dividend is paid. The amount of the total yearly dividend that is not paid is booked as debt until its payment date. This in turn increases the company's debt ratio. That this would have any real effect is however dismissed by Ken Lagerborg, Group treasurer of Atlas Copco, as it is *"an accounting effect that rating agencies and others look through"*.

7.3. Investors' reactions to change according to changers

All the companies that we have spoken to bring forth that they have only heard positive or neutral reactions from investors regarding their change of dividend frequency. No company has cited negative reactions from investors. Figure 14 summarizes the reactions as cited by the changers. Interestingly, the answers presented in this figure show that advancing changers have more often experienced positive reactions than postponing changers, and support the answers presented in Figure 8, which showed that advancing changers were more likely to cite investor friendly reasons for making the change compared to postponing changers. An example of a quote from an advancing changer that demonstrates positive feedback is from Entra:

"Very good feedback from our investors. Difficult to state any quantitative benefits"

- Anders Olstad, CFO, Entra ("Advancing changer")

Quotes from the postponing changers Telenor and Telia demonstrate examples of how that type of changer has not received the same kind of positive feedback from investors:

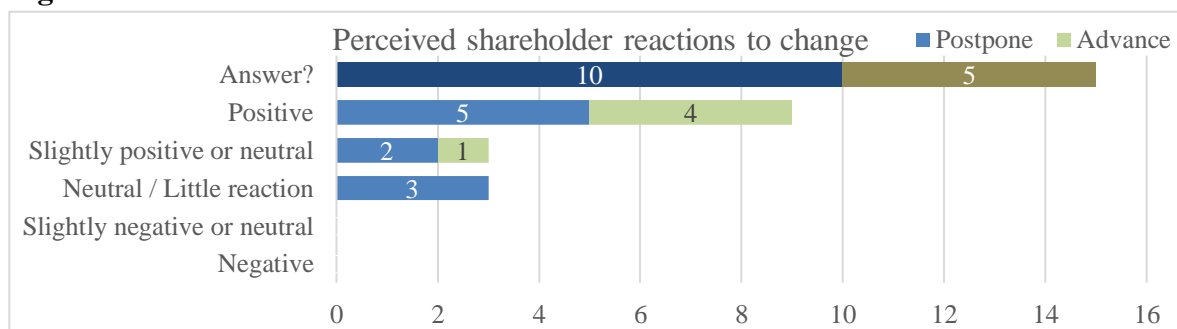
"The change did not trigger a lot of questions from investors, as this was taken as a technical adjustment (no change in dividend pay-out ratio)"

- Helge Oien, IR, Telenor ("Postponing changer")

"Very small reaction, we feel it was perceived as a natural step towards responsible management of our liquidity management/risk over time"

- Agneta Wallmark, Group Treasurer, Telia ("Postponing changer")

Figure 14



The number of changers that have cited each category of perceived shareholder reactions. Postponing (advancing) refers to those changers that postpone (advance) part of their dividend when increasing frequency.

7.4. Further opinions regarding dividend payout frequency

When talking to representatives of organizations other than the changers', views on the topic emerge that are similar as well as different to the ones presented above. We have talked to representatives from the owner side, equity analysts, and agents from companies that have not changed dividend frequency.

The Swedish Shareholders' Association, as communicated by Claes Folkmar, Chief Market Monitoring Manager, is positive towards higher dividend frequencies as it lowers the stock price effect on record dates, and thinks that more companies should start paying dividends quarterly. Göran Leine, Senior Portfolio Manager at Kåpan Pensioner, explains that more frequent dividend payments do not affect Kåpan's liquidity management since they can sell shares if they need money from their stock market investments, and since they usually reinvest dividends, the main direct effect for Kåpan is some extra work to allocate funds into the stock market portfolio at a higher number of times a year. He acknowledges that higher dividend frequency should be good for companies given more even cash flows, and that it also leads to less mispricing of stock prices when some owners do or do not want to own a dividend paying share at its record date.

Stefan Andersson, an equity analyst at SEB who has followed NCC for many years, stresses internal cash flow benefits from dividing the payment of the dividend, but the decision did not change his valuation of the company. The responses to the change from investors that Andersson talked to were, if anything, negative due to the shareholders having to wait six months longer to receive half of their dividend. He comments as follows on investors' reactions to NCC's change:

“Some American investors, such as yield funds, liked a more frequent distribution of dividends as it is an investment requirement for them. In Sweden it was rather a disappointment due to having to wait for the delayed payment of dividend.”

- Stefan Andersson, Equity Analyst, SEB

Although he mentions that some Americans investors were positive to the change, he cannot say that he has seen US ownership increasing following the change. Tobias Kaj, equity analyst at ABG Sundal Collier following real estate and construction companies, provides similar answers as Stefan Andersson. Kaj acknowledges that a split of dividend leads to a positive effect on cash flow management, but a decision to increase dividend frequency does not affect his valuation of a company.

Stora Enso is a company that has considered changing dividend frequency, but chosen not to do so. Its CEO Kalle Sundström explains that there were no internal benefits from the change, and postponing part of the dividend would only be negative for investors.

“We have a very stable and predictable cash inflow throughout the year, which makes it easy for us to handle the cash outflow to pay dividends and investments. We always pay our dividend in May, and have generated enough cash during the year to pay it by that time. We can steer the payments of investments to the end of the year so it all matches very well together. There are neither any of our peers that pay dividends more frequently than annually.”

- Kalle Sundström, CEO, Stora Enso

Although an increased dividend frequency does not benefit Stora Enso, Sundström acknowledges that some other companies benefit from more frequent payments of smaller dividends:

“It would have made more sense to split the payment of dividend if we had financed it with debt, since it then is possible to make Financial cost savings. I am however sceptic to that it is positive for shareholders that part of the dividend is delayed. They are better off receiving the whole dividend at the earliest and reinvesting it.”

- Kalle Sundström, CEO, Stora Enso

8. Summary of findings and limitations

In this chapter we outline the findings from our studies and discuss the limitations faced when conducting said studies.

8.1. Summary of findings

In this thesis, we have performed a number of test and analyses to meet the five purposes of this thesis: i) provide an overview of the topic of dividend frequency in the Nordic countries, ii) examine why many Nordic listed companies have changed dividend frequency from annual to semi-annual or quarterly, iii) analyze what the reactions and effects have been from the change, iv) evaluate the stock market returns of frequency changers and valuations of companies with different frequency levels, and v) discuss if increasing dividend frequency is a trend that we will continue to see.

To get an overview of the topic of dividend frequency in the Nordic countries, we have retrieved and analyzed available quantitative data, and compared the legal frameworks regarding dividends in the Nordic countries. During the years in our data sample, 94.5% of dividend paying companies listed in the Nordics, pay dividends annually (one time per year). However, during the last years, an increasing share of these companies have been paying dividends semi-annually or quarterly (two and four times per year, respectively). When regressing dividend frequency on a number of variables, we find that firm characteristics leading to a higher likelihood that the company pays dividends semi-annually or quarterly include operating under common law, having large size, having a higher payout ratio, and likeliness of financing dividends with debt. Comparing the legal frameworks regarding dividends in the Nordic countries shows that Sweden is the only country in the Nordics (Iceland excluded) in which the annual general meeting cannot mandate the board of directors to distribute dividends during a certain time period.

To examine why many Nordic listed companies have changed dividend frequency from annual to semi-annual or quarterly, we have conducted interviews with 17 of the frequency changers, and have also gathered data on reasons for change from financial reports, news articles, and press releases. Interviews and gathered data clearly show that the main reason for changing dividend frequency is due to internal cash flow reasons. By matching payments of dividends to operational cash flow, companies can lower their financing costs, which ultimately should increase shareholder value. Further reasons cited for changing dividend frequency

include meeting investor demand, lowering stock volatility and trading, a legal possibility to mandate the board to distribute dividends, and following a general trend.

To analyze what the reactions and effects have been from increases in dividend frequency, we have analyzed how the present value of dividends changes, performed an event study of abnormal returns, and asked interviewees about perceived reactions and effects. Our analysis of present values of dividends show that companies that postpone part of their dividend payment do not offset the negative time-value-of-money effect with large enough increases in total dividend amounts. However, companies that advance dividend payments on average increase total dividend amounts while also paying its shareholders earlier than before, thus increasing the present value of dividends following a dividend frequency increase. In the event study of abnormal returns, we find positive returns that are statistically significant from zero during event windows surrounding the day of announcing a proposed increase in dividend frequency. However, when running a regression on the abnormal returns, we cannot with statistical significance find that the returns are due to the announcement of the proposed frequency change, but the results indicate that companies that advance payments achieve higher abnormal returns surrounding the announcement date than firms that postpone payments. The reactions to the change from investors, as cited by the interviewed changers, has on average been more positive for companies that advance payments than for those companies that postpone payments.

When evaluating the stock market returns of the frequency changers compared to its peers, we find that the frequency changers have outperformed their peers over all periods that we study. However, when evaluating the market valuations of companies with semi-annual or quarterly dividend frequencies versus those with annual dividend frequency, we do not find dividend frequency to be a significant driver of valuation. Looking at these results together, we interpret the finding that the changers have outperformed their peers as a sign that the changers are governed by competent management and directors, and that increasing frequency is one of many value-enhancing decisions that they have made.

8.2. Limitations

We acknowledge that there are a number of limitations in our thesis, present in the quantitative as well as qualitative sections. Below follow discussions regarding observed limitations.

With regards to the frequency level regression we observe few observations with semi-annual or quarterly dividend frequencies, which affects the sample size of companies that get

the value 1 in the logistic function of dividend frequency, which might affect the explanatory value of the regression.

In our event studies, the choice of event date is a potential limitation of the results given that instead of the announcement date of dividend frequency changes one could have chosen for example the date when the AGM approved of the revised dividend policies. Arguably, the latter would be a firmer confirmation that a company would change its dividend frequency than the announcement of its intentions to do so. Another limitation is also the few observations of dividend frequency changers in our sample and the lack of dividend frequency changers that have decreased their frequency.

In the PV analysis, we do not consider that companies that advance dividend payments could have increased dividends even if they would not have increased frequency, i.e. the counterfactual. In our analysis of these dividends, we compare dividend amounts of the year of change to dividend amounts the year before, and not to what necessarily is the counterfactual dividend amount

As for the valuation regression, the same limitation applies as in the frequency level regression, namely that we have a small sample of companies that have semi-annual or quarterly dividend frequency.

For the stock return analysis, a limitation regards the choice of peers, where it is possible that by choosing a narrower scope, for example looking at three-digit SIC code instead of two-digit, the study would have had a more comparable peer group to compare stock returns against.

In our qualitative data gathering and analysis, a natural limitation stems from the choice of, and objectivity of questions asked to, interviewees as well as the interpretation and quantification of answers. For example, interviewees asked about the reasons for and reactions from dividend frequency changes could be biased in their answers given that they might represent an organization that has implemented said change and therefore want to speak well of his or her organization's choices.

9. Conclusions and recommendations

In this chapter, we conclude our findings and presents our recommendations for if and when companies should contemplate increasing dividend frequency, recommendation to update the Swedish Companies Act, and recommendations for future research.

9.1. Conclusions

There is currently a trend among listed companies in the Nordic countries to increase their dividend frequency. The companies that pay dividends semi-annually or quarterly today tend to be large companies with a high payout ratio. Legal framework has great effect on Nordic companies' ability to capture the flexibility provided by a high dividend frequency policy, and we see that Swedish law is lagging behind the rest of the Nordic countries in this respect.

The primary reason for increasing dividend frequency is to better match payments of dividends with cash flow before financing, which leads to lower financing costs and ultimately should increase shareholder value. Changing to a higher dividend frequency can also attract a wider investor base since some investors require that dividends are paid at a certain frequency, for example American yield funds.

All interviewed companies have experienced positive or neutral responses, which is also evident in our event study that shows that "changers" on average experience positive abnormal returns on the announcement of a dividend frequency increase. Further, companies that advance payment of dividends when increasing dividend frequency, have on average both received more positive responses and experienced higher positive abnormal returns than companies that postpone payment of dividends. However, announcements are usually made in conjunction with earning releases and the abnormal returns are mainly explained by earnings and dividend surprises, and we find no proof for the abnormal returns stemming from the change in dividend frequency, although there is some unexplained alpha in our regression that may come from the announcement of frequency increase.

Looking at stock returns, dividend changing companies as a group have outperformed peers, which we interpret as a sign that the frequency changing companies are governed by competent management and directors, and that increasing frequency is one of many value-enhancing decisions that they have made.

We believe that a shift towards more frequent dividend payments among listed companies in the Nordics is a trend that we will continue to see, given the internal benefits for the changers, the potential to attract a wider investor base, and a possibility to increase

shareholder value if the change is done correctly. While we believe that many companies benefit from paying dividends more often than annually, we acknowledge that an annual frequency suits some companies, for example if the timing of the single dividend payments matches well with the company's cash-flow before financing. Although fire trucks are still red, we believe more dividends in the Nordics will, and should, become neon.

To conclude, we recommend that more companies consider paying dividends semi-annually or quarterly, that the Swedish Companies Act is updated, and that the research on the topic continues. Below follow further descriptions of our recommendations.

9.2. Recommendation to companies

As argued above, we believe that more Swedish and Nordic companies should consider start paying dividends semi-annually or quarterly. As a guide for companies contemplating increasing dividend frequency, we have constructed a list of six considerations to go through when evaluating such a choice:

- 1) **What is our cash flow before financing activities throughout the year?** – The main reason for increasing dividend frequency is to better match the payments of dividends with the company's cash flow before financing. For this reason, to be applicable to a company, the company must have a cash-flow that is fairly even throughout the year or that is mismatched with the current timing of dividend payment.
- 2) **How will the increase be implemented?** – When increasing dividend frequency, a company can choose to either split the payment of a past year's dividends, or advance payment of dividends by distributing them closer to the period in which they are generated. The possibility to proceed with the latter option is heavily dependent on the legal framework that the company operates under, but is the option that should create the most shareholder value given that the investors then get to take part of a company's profits at an earlier time.
- 3) **Are we in a strong financial position?** – A company that postpones payment of half of its dividend when increasing dividend frequency can be seen as making the change in order to borrow part of the dividend from its shareholders. If such an interpretation is made, the change may be a signal of the company being in weaker financial position than expected and the share price therefor being traded down. If the company is in a strong financial position, the risk for such interpretations being made is lowered.
- 4) **What kind of stock are we / do we want to be?** – Increasing dividend frequency strengthens the dividend profile of its stock, which attracts a type of investors that prefer

receiving dividends regularly. A company that considers increasing dividend frequency should think about what kind of stock it wants to be profiled as.

- 5) **Will implementation be an administrative burden (e.g. given legal structure?)** – Paying dividends more frequently demands some additional administrative efforts as the process of paying dividends has to be gone through more times. Possible administrative burdens may include extracting cash from subsidiaries, auditing financial statements, and lending money to pay dividends with.
- 6) **Total dividend needs to be increased** – When increasing dividend frequency, the average timing of dividends over the year usually increases, causing the discount rate used to discount dividends to increase. To offset this effect, the total dividend amount needs to be increased compared to what it would have been in the absence of a frequency increase.

9.3. Recommendation to update Swedish Companies Act

We believe that the Swedish Companies Act (“SCA”) should be revised so that it is possible for the Annual General Meeting to mandate the Board of Directors to distribute earnings during the time in between two AGMs, given that the company has sufficient unrestricted own equity. If the SCA is rewritten in this way, it would correlate better with current legislation for share repurchases, as well as with legislation in Norway, Finland, and Denmark. The difference between the laws regarding dividends and share repurchases is put forth by NCC’s chairman Tomas Billing as a reason to rewrite the SCA:

“The board can be mandated to do share repurchases, but not to distribute dividends. There is no economically valid reason why the board can’t be mandated to distribute dividends but to repurchase shares”

- Tomas Billing, Chairman of NCC

Erik Nerep, professor of Swedish and International Trade Law at the Center for Business Law at the Stockholm School of Economics, agrees that the law should be rewritten:

“It should be the exact same thing. The law is poorly written. There should be a mandate for the board to distribute dividends, just as with repurchase of shares”

- Erik Nerep, Law Professor, Stockholm School of Economics

In our opinion, revising the SCA to allow the AGM the mandate the Board of Directors to distribute earnings in a similar way as it can be mandated to repurchase share, will benefit Swedish business as it will increase executive management's flexibility with respect to matching dividend payments with their operating cash flows, and benefit shareholders by more quickly being distributed the earning that their company generates.

9.4. Recommendations for future research

As we have been going through the work with this thesis, we have been faced with a number of questions that we recommend be explored further in the literature.

In our study we briefly touched upon the present value effect of dividend frequency changes, and how the change resulted in either shortened or prolonged wait for investors to receive their dividend payments. Future research may analyze further the impact of these timing changes on valuation models such as the Dividend Discount Model and ultimately the valuation of stocks.

Furthermore, our interviews suggested that increasing dividend frequency may attract foreign investors and widen the investor base. It would therefore be an interesting topic to analyze how ownership changes following a change in dividend frequency. Does ownership from countries that are used to frequent dividend payments (e.g. the US) increase when frequency increases?

Finally, future research may analyze the effect on overall stock market valuations throughout a year depending on the frequency of dividend payments, to see if the distribution of dividends and following reinvestments affects stock market valuation. This idea stems from talking to pension funds that reinvest dividends as soon as they get them, and we hypothesize that if many funds operate in this manner, there should be a period of increased demand and thereby higher prices for the stocks that the funds reinvest their dividends in.

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11. Appendix

Table 9: Overview of sources for qualitative analysis

Frequency changer contacts				
Listed in	Company	Interviewee	Role	Medium
Sweden	NCC	Tomas Billing	Chairman	Telephone
Sweden	NCC	Mattias Lundgren	CFO	In-person
Sweden	Atlas Copco	Hans Ola Meyer	CFO	e-mail
Sweden	Atlas Copco	Ken Lagerborg	Group Treasurer	e-mail
Sweden	Telia Company	Agneta Wallmark	Head of Treasury	e-mail
Sweden	Fast Partner	Sven-Olof Johansson	CEO	e-mail
Sweden	Klöver	Lars Norrby	Investor Relations	e-mail
Sweden	Com Hem	Mikael Larsson	CFO	e-mail
Sweden	H&M	Nils Frisk	Investor Relations	e-mail
Finland	Citycon	Mikko Pohjala	Investor Relations	e-mail
Finland	Fiskars	Kristian Tammela	Investor Relations	e-mail
Norway	Akva Group	Pierre Hatjoulis	Group Controller	e-mail
Norway	Telenor	Helge Oien	Investor Relations	e-mail
Norway	Tgs-Nopec Geophs.	Sven Børre Larsen	CFO	e-mail
Norway	AF Gruppen	Sverre Hærem	CFO	e-mail
Norway	Entra	Anders Olstad	CFO	e-mail
Denmark	Tryg	Gianandrea Roberti	Investor Relations	e-mail
Denmark	DFDS	Sören Broendholt	Investor Relations	e-mail
Finland	Fiskars	Kristian Tammela	Investor Relations	e-mail

Other contacts

Company / Organization	Interviewee	Role	Medium
Stora Enso	Kalle Sundström	CEO	In-person
Patricia Industries (Investor AB)	Christian Cederholm	Co-Head	In-person
Stockholm School of Economics	Erik Nerep	Law Professor	In-person
SEB	Stefan Andersson	Equity Analyst	Telephone
ABG Sundal Collier	Tobias Kaj	Equity Analyst	Telephone
Kåpan Pensioner	Göran Leine	Senior Portfolio Manager	e-mail
Swedish Shareholders' Association	Claes Folkmar	Chief Market Analyst	e-mail

Third party sources

Listed in	Company	Interviewee	Role	Medium
Sweden	Castellum	Henrik Saxborn	CEO	News article
Sweden	Castellum	Ulrika Danielsson	CFO	News article
Sweden	Wallenstam	Christer Villard	Chairman	Annual report
Sweden	Husqvarna	n/a	n/a	Annual report
Sweden	Electrolux	n/a	n/a	Annual report
Finland	Wärtsilä	n/a	n/a	Annual report
Norway	Statoil	n/a	n/a	Annual report

This table lists the sources for qualitative data, including their role at respective organization and how we have contacted them.

Table 10: Detailed overview of Cumulative Abnormal Returns per company

	CAR				
	t	t-1 to t+1	t-3 to t+3	t-5 to t+5	t-5 to t+250
Hennes & Mauritz	0.002	-0.051**	-0.060*	-0.053	na
Castellum	-0.001	-0.002	-0.010	-0.028	na
Atlas Copco	0.011	-0.005	-0.016	0.026	-0.207
Coloplast	0.109***	0.079***	0.103***	0.069*	0.204
Electrolux	-0.029**	-0.026	-0.020	-0.042	na
Husqvarna	0.011	0.078***	0.098***	0.113**	-0.085
København's Lufthavne	-0.009	-0.003	-0.053	-0.033	-0.803***
Lucara Diamond	-0.034	0.006	0.045	0.157	1.083**
NCC	0.037**	-0.034	-0.054	-0.062	-0.239
Ramirent	0.123***	0.148***	0.180***	0.112**	na
Telia Company	0.034***	0.018	0.001	0.023	0.068
Tryg	0.055***	0.073***	0.074***	0.070**	-0.174
Wallenstam	0.012	0.022	0.013	0.013	na
Wartsila	0.071***	0.069***	0.078***	0.111***	na
AF Gruppen	-0.004	-0.003	0.053	0.049	0.035
Akva Group	0.254***	0.313***	0.310***	0.347***	0.101
Entra	0.000	-0.047**	-0.019	-0.016	0.144
Prosafe	0.006	0.035*	0.050	0.037	-0.052
Selvaag Bolig	0.031	0.045	0.021	0.026	-0.530*
Statoil	0.032***	0.025**	0.052***	0.040*	-0.005
Telenor	-0.049***	-0.039**	-0.091***	-0.096***	-0.307*
Tgs-NOPEC Geophs.	-0.126***	-0.091***	-0.069	-0.043	-0.115
Com Hem Holdings	0.022*	0.026	0.018	0.042	0.181
Novo Nordisk	-0.026***	-0.057***	-0.044**	-0.029	-0.472***
Atea	-0.006	-0.010	0.003	-0.009	0.429*
DFDS	0.084***	0.143***	0.159***	0.167***	0.161
Citycon	0.008	-0.003	0.001	0.001	0.122
Fast Partner	-0.011	0.004	0.020	0.040	-0.063
Fiskars	0.049***	0.066***	0.078***	0.074**	na
Kloven	-0.025*	-0.037	-0.018	0.023	na
Tryg	-0.028***	-0.060***	-0.037	-0.022	-0.009
Aspo	-0.006	-0.006	0.003	-0.005	na
Rapala	-0.010	-0.030	-0.041	0.014	na
Elekta	-0.034	-0.057	-0.072	-0.072	-0.137
# of significantly positive CARs at 5% level	10	9	9	7	1
# of significantly negative CARs at 5% level	5	6	2	1	2

***, **, and * represent significance levels of 0.01, 0.05, and 0.1, respectively

This table illustrates the CAR of our samples surrounding the announcement of a dividend frequency change

Table 11: Total stock return performance for changers and peers. by industry								
Two-digit SIC Industry	Changers				Peers			
	N	Total return from			N	Total return from		
		2005	2010	2015		2005	2010	2015
Oil & Gas Extraction	2	60%	21%	15%	69	91%	51%	72%
Mining and Quarrying	1	346%	296%	137%	1	240%	504%	315%
Building & Construction	2	1813%	557%	157%	17	637%	221%	142%
Chemicals and Allied Products	1	1372%	569%	133%	150	219%	218%	157%
Petroleum Refining	1	332%	172%	148%	2	297%	154%	133%
Fabricated Metal Products	1	652%	367%	142%	14	128%	47%	83%
Industrial and Commercial Machinery and Computer Equipment	4	1305%	494%	201%	92	243%	193%	142%
Electronic Equipment and Components	1	553%	216%	130%	94	200%	192%	150%
Measuring, Analyzing, and Controlling Instruments	2	918%	374%	100%	101	301%	163%	129%
Miscellaneous Manufacturing	1	98%	100%	87%	12	191%	253%	148%
Water Transportation	2	726%	452%	253%	46	55%	51%	91%
Transportation by Air	1	982%	709%	208%	6	238%	146%	166%
Communications	3	490%	251%	143%	32	205%	144%	129%
Apparel and Accessory Stores	1	271%	133%	67%	6	74%	76%	93%
Insurance Carriers	1	589%	328%	136%	11	442%	259%	150%
Real Estate	7	800%	367%	151%	85	263%	168%	135%
Business Services	2	844%	292%	167%	238	231%	166%	145%
Weighted total return index		906%	345%	140%		243%	157%	133%

This table shows the total return for changers and their relevant peers for different time periods, split by two-digit SIC Codes

11.1. NCC case study

Background

On January 30th, 2014, the Board of Directors of building and construction company NCC proposed, in conjunction with the release of their 2013 year-end report, that NCC increases its annual dividend from SEK 10 per share to SEK 12 per share split into two instalments. In doing so, they were the first of the Swedish companies in our sample to increase frequency of dividend payments. The primary reason for the change in frequency of dividend payments from once to twice a year was that it better matched NCC's cash flow profile throughout the year, and as a positive side-effect it made the NCC share more attractive to a wider investor base. Before going into a closer description of these reason, it is necessary to understand NCC's business model.

Stockholm headquartered NCC is one of the largest building and construction companies Scandinavian. In 2016, NCC had sales of SEK 52,934 million, split over its business areas NCC Industry (19%), NCC Building (46%), NCC Infrastructure (30%), and NCC Property Development (5%). All of NCCs sales are in Scandinavia, with ca. 50% in Sweden. NCC's business areas are highly cyclical as construction and building is limited during the cold Nordic winters. A typical construction is initiated after the summer year 1, slowed down during the winter, and finished in the fall year 2, leading to large cash flows in Q4 when a project is finished. Further, NCC mainly conducts constructions as a contractor, a business that has nice and stable cash flows. The NCC of today is however quite different from the NCC of 2013 when the increase in frequency of dividend payouts was proposed.

When the frequency change was proposed, 16% of NCC's external sales came from their housing division that produced private person homes (later spun-off in 2015 and listed as Bonava). The housing division drew a lot of cash for its operations, which resulted in NCC having far higher leverage than today, and particularly during the spring in connection with their large cash outflows and investments. To allow their contracting business to submit construction tenders at reasonable prices, NCC had an internal goal of a maximum net debt level that would classify them as “investment grade”. Given that NCC had no excess cash liquidity besides cash used in operations, NCC used loans to finance their annual dividend in the spring, when the net debt already was high. This meant that the maximum net debt level was strained.

The Decision and Implementation

In an effort to ease the pressure on the debt level, NCC's Chairman Tomas Billing started thinking about dividing the payment of their dividend.

"The payout policy that we had at NCC when we paid the whole dividend in April was the worst one possible. We have a very negative cash flow in Q1, and the business is more or less standing still. If we could split the payment, so that we pay half in Q4, it would match our cash flow much better", says Tomas Billing about the reason for increasing dividend frequency.

That no other company in Sweden had done so, was not stopping them. Billing continues: "I think you should always do what is the best for the company. You shouldn't think about conventions or what others do."

NCC's current CFO Mattias Lundgren reasons similarly regarding NCC being the first Swedish company to increase dividend frequency.

"It is part of our DNA to try new things. We were very early with trying new kinds of bonds, and not just using regular bank loans. A few years ago we split our company into a B2C part (Bonava) and a B2B/B2P part. Trying a new dividend frequency is another example of the kind of change that is part of our DNA."

Following the instinct of its DNA, NCC chose to divide the payment of 2013's dividend from one payment in April 2014, to one payment in April 2014 and one in November 2014.

When dividing the dividend into two payments by postponing payment of part of the dividend, it was important for Tomas Billing that the total dividend amount increased.

"We had to increase the dividend to offset negative time-value-of-money effects, and preferably materially. We increased the total by 20%, but it could just as well had been to SEK 11 [10%]. If we did not increase the dividend, it would look like a sign of weakness, and the present value effect for investors would be negative", reasons Tomas Billing regarding the how to implement the change in frequency.

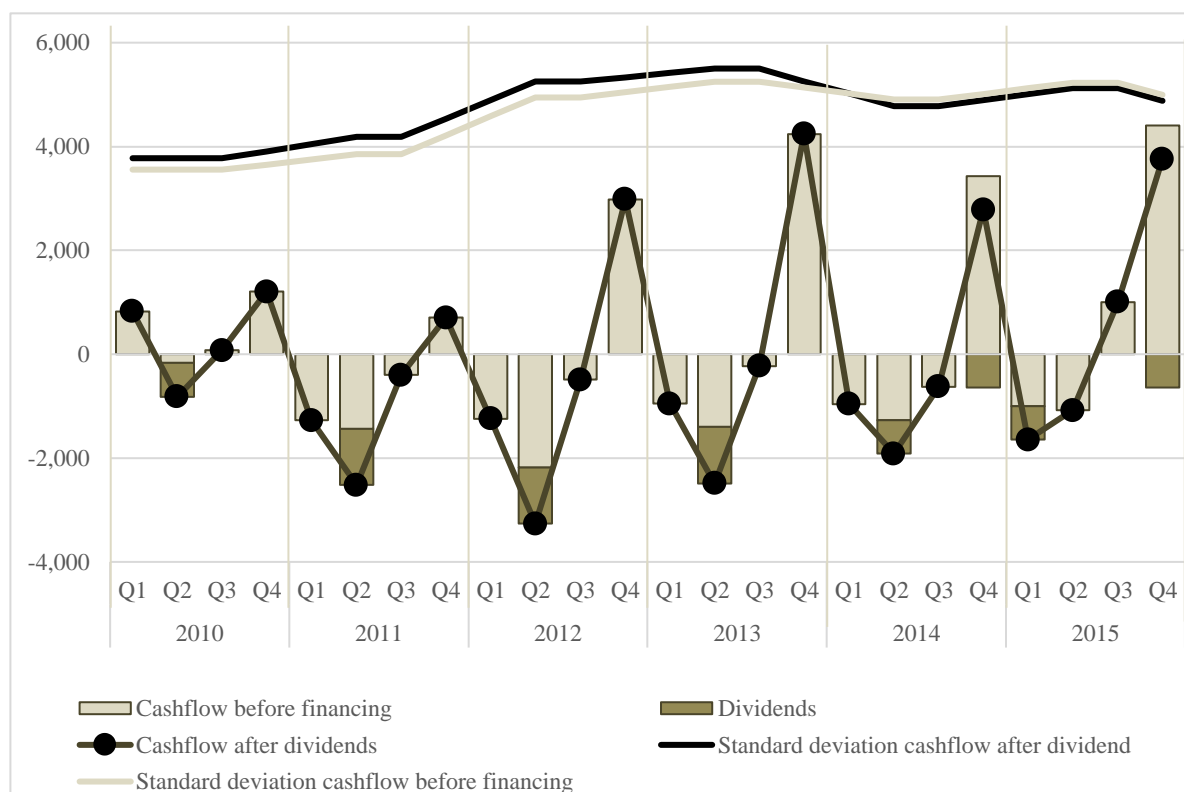
Effects from the change

Figure 15 visualizes NCC cash flow before financing, dividends and the sum of the two (cash flow after dividends). Above the bar charts, two lines represent the in-year standard deviation of cash flow before financing as well as of cash flow after dividends. As the graph shows, in 2013 and preceding years, the payment of dividends in Q2 enhanced the negative cash flow in Q2, but after splitting the payment of the dividend, the negative enhancing effect on cash flow in Q2 is scaled down, and some of the positive cash flow in Q4 is used to pay dividend.

Looking at the two standard deviation (“STDEV”) measures, we see that the STDEV in CF after dividend is larger than the STDEV in CF before financing for the years before the change. However, when the dividend payment is split into two, the standard deviation lines change positions because placing part of the payment of dividends in Q4 leads to lower swings in cash flow between quarters.

The dividend frequency increase also had some positive side-effects stemming from external factors. For example, NCC noticed how they following the frequency change more often were invited to presentations and seminars with international investors, indicating that they had gotten themselves on the radar of a broader, international investor base. In addition, NCC noticed how the decreased volatility in their stock surrounding the dividend payment dates had driven away the London-based hedge funds.

Figure 15



This figure illustrates NCC's cash inflows and outflows before and after the increase in dividend frequency