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Dividend Anomalies

A Comparative Analysis of Sweden and the U.S.

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Abstract

This paper examines stock price dynamics in the Swedish stock market during dividend months, mirroring the methodological approaches by Hartzmark and Solonmon (2013). The main objective of this paper is to examine whether Swedish firms exhibit higher positive abnormal return in months with anticipated dividends, testing the presence of a phenomenon referred to as "Dividend month premium". Using Swedish stock market data from 2009 to 2019, we employ Fama French Carhartt factor regression as our primary framework complemented by daily return analysis around dividend events. Our empirical results support that Swedish firms generate positive abnormal returns around the dividend month, further challenging the traditional risk based explanation. However, the magnitude and consistency of the effect is notably weaker and concentrated than those documented in the U.S. This diminished effect appears to stem from the Swedish institutional settings which play a significant role on how Swedish investors react to dividend events.

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Key Words:
Dividends Month Premium, Swedish Stock Market, Abnormal Returns, Price Pressure, Ex-day Effect

1. Introduction

Dividend policy has long been a central topic within finance, where early traditional theories argue that under perfect market conditions, dividends should not affect firm value and therefore ought to be irrelevant (Miller and Modigliani, 1961). In reality, however, many studies find that dividend-paying stocks systematically earn positive abnormal returns around dividend events. This phenomenon is examined more in detail by Hartzmark and Solomon (2013), whose key finding is what they refer to as the *Dividend Month Premium*. They find that U.S. stocks on average earn positive abnormal returns in months when they are expected to issue dividends and primarily attribute it to temporary price pressure.

Their findings raise questions about market efficiency and investor behaviour, and although dividend-related anomalies have been documented in several markets, it remains unclear whether the same patterns found in the U.S. can be generalised and found in other markets as well. Sweden is a relevant market for such an extension, as several of its institutional features differ from the U.S. in ways that could potentially influence trading behaviour around dividend events. That leads us to our first research question: *To investigate if we can find evidence of the Dividend Month Premium, or similar phenomena, in the Swedish stock market.*

Whether the Dividend Month Premium exists in Sweden is not widely tested yet, but replicating Hartzmark and Solomon (2013) in the Swedish setting provides a valuable test of the external validity of the dividend month premium. With the objective of examining how country-specific institutional factors may shape dividend-related return patterns, we believe that the findings could also be relevant for both Swedish investors and managers; particularly when choosing investments and designing dividend policies, based on their strategies and primary objectives. That motivates our second research question: *If such an effect exists in Sweden, we want to examine if it differs from the findings in the U.S. market and if so, how?*

Provided that we observe any significant differences, the aim of this thesis is to further explore *why*, and the natural first step is to establish the Swedish institutional setting. Firstly, the Swedish dividend cycle is different. While the U.S. market is dominated by quarterly dividend payouts, most Swedish firms follow the Nordic norm of paying dividends annually. The dividend season is usually around March to May, in connection with annual general meetings. This often results in one larger dividend payment rather than several smaller ones throughout the year (SEB Research, 2025). Thus, since dividend ex-dates are highly concentrated in a short period, rather than dispersed quarterly, this may influence whether a dividend month premium can arise.

Secondly, the Swedish dividend tax system differs markedly from the U.S. In the U.S., dividends can be classified as either qualified or ordinary, which affects the applicable tax rate (Vanguard, 2025). By contrast, Sweden applies a flat 30 percent tax on dividends and also applies the 3:12 rules for most closely held firms, which allow more favourable dividend taxation for closely held firms in certain cases (Colleen, 2025). These differences may affect timing and investors' incentives to trade around dividends.

Thirdly, core differences relate to ownership structure and investor climate. The Swedish stock market is highly concentrated in institutional ownership, where pension funds and investment companies represent a significant share of total equity holdings (OECD, 2025). At the same time, Swedish household participation is widespread and it is reported that retail investors generally maintain long-horizon and low-turnover portfolios (Finansinspektionen, 2025). Moreover, despite dividends being taxed at a flat 30 percent rate, the widely used ISK taxes capital gains indirectly through a low annual wealth tax (Skatteverket, 2025), potentially reducing incentives for chasing dividends and short-term trading due to tax-sensitivity.

Taken together, these institutional differences suggest that Swedish stocks may not necessarily behave similarly as U.S. stocks around dividend events. In particular, it is reasonable to believe that the strong interim build-up and subsequent reversal documented in the U.S. may be weaker or absent in Sweden. This idea culminates into our third research question: *Provided that differences emerge, what are likely explanations? Could we attribute it to institutional differences, such as dividend cycles, tax and investor clientele or to other market conditions.*

2. Literature Review

The key phenomenon that this thesis seeks to investigate is the *Dividend Month Premium*, which is the primary finding of Hartzmark and Solomon (2013). Through an event study, they show that U.S. stocks on average earn significantly higher abnormal returns in months when expected to issue dividends. More interestingly, they observe that abnormal returns are not only limited to the ex-dividend day but begin to build up between the announcement and the ex-day, even though no new information is provided during this window.

The paper identifies a distinctive return pattern: *a build-up during the interim period, a sizable ex-day effect and a strong reversal afterwards.* That suggests that investors start buying shares, pushing prices upward until ex-day passes, then they reverse once investors' positions are unwound. The authors attribute this pattern to *temporary price pressure*, driven by dividend-seeking investors rather than risk or information.

To investigate this, we build on existing theories and previous work. Our starting point is the traditional view of Miller and Modigliani (1961) who proposes the *Dividend Irrelevance Theory*, arguing that in a frictionless and efficient market, dividend policy should not affect firm value or expected returns. Investors should be indifferent between receiving dividends today or capital gains in the future. Thus, any deviations from this benchmark such as predictable return patterns around dividend events would therefore contradict market efficiency and propose that additional mechanisms may influence investor behaviour.

Some of the most traditional explanations for these deviations are risk-based. Kalay and Loewenstein (1985) holds that high returns around dividend announcements could simply reflect risk, arguing that stock returns are more volatile on announcement days. This is supported by Savor and Wilson (2011) who assert that firms' returns become more correlated with macroeconomic risks on major announcement days, thus explaining unusually high returns with higher systematic risk.

Other empirical studies provide information-based explanations, such as signaling theory and announcement effects. For instance, Bhattacharya (1979) and Miller and Rock (1985) suggest that firms use dividend changes to convey information about future earnings or cash flow prospects. Under this view, abnormal returns around dividend announcements reflect the arrival of new valuable information. Accordingly, Engelberg, McLean and Pontiff (2018) find that many return anomalies are concentrated and stronger on days when firm-specific news are released, consistent with Savor and Wilson (2011) arguing that firm returns are more correlated with macroeconomic risks during announcement periods. They further suggest that high returns are simply investors being compensated for bearing higher information risk.

However, Hartzmark and Solomon (2013) test if this holds for dividend announcements as well and find that the dividend month premium builds up *after* the announcement, when no new information is disclosed and volatility is not elevated. That makes pure risk explanations unlikely and further means that signaling and information-based explanations cannot solely explain the price anomalies between announcement and ex-day. Therefore, although providing a useful contrast they are unlikely to be the primary mechanism behind the dividend month patterns examined in this thesis, shifting the focus toward other mechanisms and explanations.

A well-documented one, also considered by Hartzmark and Solomon (2013), is the *ex-dividend effect*. Ample empirical studies show that stock prices tend to fall less than the dividend amount on ex-day, which in perfect markets should equal the dividend amount; thus resulting in return peaks concentrated around ex-day. Elton and Gruber (1970) argue that investors care about the after-tax returns of dividend compared to capital gains from selling the stock, making tax clientele and timing crucial. If a dividend is taxed more heavily than the capital gain from selling a stock, investors will likely wait and buy a stock on the ex-day or after. In this way they avoid receiving dividends and tax disadvantages, since buying a stock before ex-day entitles them to its dividends. This potentially explains abnormal returns on the ex-day itself, but not fully explains the price drift before or after the ex-day, which is central for the Dividend Month Premium.

Other researchers point towards more non-fundamental drivers. Baker and Wurgler (2004) argue that firms may *cater* to temporary investor demand for dividends and that dividend demand is driven by factors such as investor preference and risk aversion which can influence prices and create price pressure even without new information. They suggest that during times of economic uncertainty, dividends are often viewed as a safe income. Other studies focus on seasonal effects and how broader seasonality can be predicted and shape return patterns. For instance, Heston and Sadka (2008) finds evidence for a *calendar month effect*; that some stocks consistently earn high returns in the same calendar month each year, suggesting that returns in the current month could potentially be predicted using returns from the corresponding month in previous years.

In addition, Lakonishok and Vermaelen (1986) show that if there is predictable timing of clustered dividend payments, when most dividend payments are concentrated during a single dividend season, it may create *seasonal effects* on return patterns around ex-dividend days. That may make it more difficult to distinguish whether abnormal returns are caused by dividend-specific reasons, or simply by seasonal return patterns. Hartzmark and Solomon (2013) did not find seasonal effects to explain the interim period price drift in the U.S., potentially because of the spread of dividend payments, instead they point towards a price pressure mechanism.

That moves us to their main explanation provided: *temporary price pressure.* Studies on price pressure by Shleifer (1986) and Greenwood (2005) show that when investor demand shifts in a predictable way, prices can temporarily be pushed away from fair value, despite no new information being disclosed. That is consistent with Hartzmark and Solomon (2013), arguing that dividend-seeking investors start buying shares between the announcement and ex-date, increasing the demand and pushing prices upward during the interim period. This creates a short-term overpricing, but once the ex-day passes, prices reverse. Price pressure therefore offers a demand-based explanation for short-term return patterns around dividend events.

To sum up this section, although dividend anomalies have been examined in several countries, evidence of the Dividend Month Premium outside the U.S. is still limited. Sweden provides an interesting context due to its distinct institutional features, including annual dividend payments concentrated in a short spring season, its dividend tax structure and high share of long-horizon institutional investors. These characteristics may influence whether the patterns documented by Hartzmark and Solomon (2013) also appear in the Swedish market, which is what the following sections aim to explore.

3. Methodology Overview and Data Gathering

We apply the same methodology as Hartzmark and Solomon (2013) to the Swedish market from *1st of January 2009* to *31st of December 2019*. We use those particular years since we look at general patterns and want to capture "normal years". This period excludes major events such as the 2008 Financial Crisis and Covid-19, avoiding potential biases those might have imposed. The purpose is to study the effect of predicted dividends on Swedish stock prices, by analysing abnormal returns around dividend events, first monthly but later broken down into daily. We study the existence of the dividend month premium in Sweden by comparing predicted dividend months to non-dividend months, as well as comparing predicted dividend payers to non-predicted payers. Beyond identifying whether a dividend month premium exists, we aim to understand why such a pattern may or may not appear. Furthermore, we investigate whether we can observe evidence of any price pressure or an ex-day effect.

To make our results more robust, we also perform additional tests in table 5, 6 and 7. This part of the empirical analysis does not consist of fully independent sections but rather serves as controlling tests on the results we obtain from the former ones. Given that we find a dividend month premium or similar phenomenon relating to abnormal returns, these sections aim to explore whether the abnormal returns are truly dividend-related. We examine whether the abnormal returns follow the natural dividend cycle, controlling for several dividend frequencies. Consequently, we explore if we can observe long-term persistence in the anomalies or if the dividend month premium simply reflects short-term trading. We then investigate if the abnormal returns may not be dividend-related but are rather influenced by factors such as broader seasonal patterns or calendar effects, as suggested by Heston and Sadka (2008).

To perform this analysis, we construct our data universe, mirroring Hartzmark and Solomon (2013) but using Swedish market data. We consider public stocks listed on Nasdaq OMX Stockholm and include only active and primary listings. Although they excluded shares with price less than $5, we choose to include all shares regardless of prices since the Swedish exchange is significantly smaller than the U.S. exchange. Excluding small-sized shares risks removing a large proportion of our sample, making it insufficient and biased.

Our main data sources are LSEG Workspace and FinBas by the Swedish House of Finance. From LSEG Workspace (2025) we retrieved our raw data for monthly returns and dividend event data; such as dividend announcement date, ex-dividend date, currency, dividend gross amount and dividend frequency. With regards to dividend payments, we include only ordinary cash dividends and focus on recurring dividends; such as quarterly, semi annual and annual dividends. Mirroring Hartzmark and Solomon (2013), we count dividends with no set of frequency as equivalent to the most frequent one, in our case annual dividends *(see appendix A)*. From FinBas (2025) we also obtained Kenneth Fama French Standards Factors for the Swedish market, daily stock prices and company fundamentals; such as market capitalization and book value. Complementary GDP-data for table 4 is retrieved from SCB (2021).

4. Empirical Analysis and Results

4.1. Predicted Dividend Months and Raw Return

To begin the analysis, we construct Table 1 in two steps generating two panels. We start by examining whether Swedish stocks display higher average returns in months when expected to pay dividends, shown in Panel A. Provided that they do, in Panel B we examine whether higher returns are truly abnormal or simply reflect higher risk; which would be consistent with pure risk-based explanations (Kalay and Loewenstein, 1985). These steps follow the logic of Hartzmark and Solomon (2013), and if our findings are aligned with theirs, we expect stocks to earn significantly higher returns in dividend months. Given that we observe higher returns in dividend months, in order to find evidence of a non-risk-based dividend month premium, we expect to not find that those months also display higher volatility.

For Panel A, we group the stocks based on when, number of months since, the last dividend was paid. For each of the 12 monthly-sorted groups the average raw return and standard deviation is computed. This allows us to examine the risk-return tradeoff for each month separately and identify whether particular months, for instance dividend months, display notably higher returns in relation to its volatility and compared to other months. We expect that our findings may deviate from Hartzmark and Solomon (2013) because of Sweden's annual dividend frequency, instead of quarterly.

Table 1, Panel A: Raw Returns of current dividend, sorted by the timing since last dividend

This panel represents monthly average stock returns and standard deviation, sorted by the timing of past dividends from January 1st 2009 to December 31st 2019. It further represents raw return and standard deviation of each month, given how many months ago the last dividend was done.

	Returns in current month given dividend payment N months ago	
Months since dividend payment	**Mean return**	**Standard deviation**
1	-0.14	7.25
2	0.13	7.59
3	1.20	8.54
4	0.84	7.81
5	1.69	8.48
6	1.51	8.76
7	1.45	7.53
8	2.19	7.53
9	3.20	8.76
10	2.67	8.29
11	2.64	7.15
12	1.98	8.51

Panel A shows that stocks that paid their last dividends one month ago, on average, earn the lowest return; slightly negative with a mean return of (-0.14%). The volatility in that month is low as well. However, it is not the least volatile month since the standard deviation is 7.25 which is higher than month eleven, having the lowest standard deviation of 7.15. Despite being least volatile, month eleven has one of the highest mean returns of 2.64%, contradicting arguments of a pure risk-reward tradeoff. In addition, if the pure risk-based explanations hold, we would expect stocks that paid dividends nine months ago, earning the highest mean return of 3.2%, to also be significantly more risky than all the other stocks. That is not fully the case. While they do have one of the highest standard deviations by 8.76, it is not significantly higher than the other groups and interestingly; stocks that paid their last dividend six months ago also have the same standard deviation of 8.76 but only earn a mean return of 1.51%. Likewise, stocks that paid dividend three months ago are one of the most volatile, but still only earn a mean return of 1.2%

Overall, our results for Panel A show no evidence of any one-to-one-relationship between risk and return, thus do not provide evidence for the risk-based arguments of Kalay and Loewenstein (1985), and fail to conclude whether high returns are due to higher volatility. Moreover, a key difference from Hartzmark and Solomon (2013) is that they find a prominent pattern of higher return and lower volatility in the months 3, 6, 9, 12, those when dividends are expected to be paid; given quarterly dividends. We would expect a clear return pattern in order to establish the existence of a dividend month premium. Instead we fail to identify a consistent pattern of when return is high or volatility low. Thus, we can not provide sufficient evidence for its existence.

On the other hand, we also can not provide evidence to support that it does not exist either. For instance, it is reasonable to believe, if the dividend month premium does exist, that dividend frequency could be a key factor behind the inconsistent return patterns for our sample. Since our dominating frequency is annual rather than quarterly, our dividend months will reasonably not be the same as in the U.S. which may also shape investor expectations. For instance, given that a premium does exist, annual dividends could potentially make the effect weaker and thus result in more noise making it more difficult to identify a clear pattern. If that holds true, it would partly explain our results. In order to further examine whether a dividend premium, possibly weaker, may exist; we move on to the next step which is shown in Panel B.

For Panel B, we mirror Hartzmark and Solomon (2013) and establish three categories: (1) companies that are predicted to pay a dividend this month, (2) companies that have paid at least one dividend in the past 12 months but are not predicted to pay this month and (3) all other companies that are not predicted to pay dividend this month, regardless if they have historically paid. We work under the assumption that dividend behaviour is predictable and thus all companies with regular[1] past dividend payments fall under (1) predictable dividend payers.

Continuing, we form two portfolios and the purpose is to make two comparisons. In the first portfolio we compare predicted dividend payers only to companies that have historically paid dividends. It consists of long predicted dividend payers (1) and short all other companies with at least one dividend in the past 12 months, but not expected to pay this month (2). In the second portfolio we compare predicted payers to all non-predicted players, including both past- and non-dividend paying companies. The portfolio consists of long predicted payers (1) and short all other companies that are not predicted to pay a dividend this month. The main purpose is to explore whether (1) predicted dividend payers outperform the non-predicted dividend payers (2) and (3), since that would serve as evidence for the existence of a dividend month premium.

[1] We predict the dividend will be paid in the current month only if a quarterly dividend was paid 3, 6, 9 or 12 months ago, if a semi-annual dividend was paid 6 or 12 months ago; or if an annual dividend was paid 12 months ago.

Table 1, Panel B: Returns and Portfolios based on Predicted Dividend Payment

This panel shows the time series returns of three categories: (1) Companies that are predicted to pay a dividend this month, (2) companies that have paid at least one dividend in the past 12 months but are not predicted to pay this month and (3) all other companies that have not paid dividend in the past 12 months. It also shows the average return and standard deviation of the two constructed portfolios. For both the three categories and the two portfolios, the sharpe ratio is computed. The sharpe ratio equals the average return minus risk free rate, divided by standard deviation of returns.

	Mean return	Standard deviation	Sharpe ratio
(1) Predicted dividend month	2.39	5.55	0.43
(2) All other companies with a dividend in the last 12 months	1.69	4.28	0.40
(3) All other companies with no dividend in the last 12 months	1.99	5.34	0.37
Portfolio long (1) and short (2)	0.78	4.47	0.17
Portfolio long (1) and short (3)	0.69	5.42	0.13

Panel B shows that when comparing the three different categories, (1) predicted dividend payers earn the highest average returns of 2.39% but their returns are also most volatile with a standard deviation of 5.55. Looking at the others, (2) other past payers and (3) non-predicted payers, we see that the argument of lower risk equals lower volatility in fact holds here. However, when instead looking at the Sharpe ratio, (1) predicted dividend payers in fact have the highest Sharpe ratio. That potentially provides some, although weak, evidence of an earnings premium.

Moving on to the portfolios. In the first portfolio, long in (1) predicted dividend payers and short in (2) other past payers but non-predicted, the mean return is 0.78% which is significantly lower than any of the three categories alone. However, the portfolio volatility does not follow the same pattern, resulting in a notably lower Sharpe ratio of 0.17. Based on the Sharpe ratios we find evidential support indicating that a dividend month premium may exist, since the both categories of dividend payers, (1) and (2), have the highest Sharpe ratios; and mixing the predicted dividend payers in portfolios lowers the Sharpe ratio. However, Hartzmark and Solomon (2013) found significantly larger differences in the U.S., particularly that (3) non-predicted payers and the second portfolio had markedly higher volatilities than both (1) and (2). This suggests that portfolios restricted to dividend-paying firms exhibit somewhat better risk-adjusted performance.

Overall, we find abnormal returns and some supporting evidence of a dividend month premium exists in Sweden. However, we believe that the effect is notably weaker and less significant relative to the U.S. Although risk-return-trade-off provides useful intuition, it does not fully control for multiple sources of systematic risk. This will be done in the next section, using a more complex regression model.

4.2. Risk Adjusted Returns in Dividend Months

In this section we extend our analysis, to evaluate whether the argument of Savor and Wilson (2011) holds, that the observed abnormal returns in dividend months arise because of systematic risk. To test this, we construct Table 2. The data used in the regressions throughout Table 2 are Swedish monthly stock data from January 2009 to December 2019 listed on Nasdaq Stockholm. We build three panels, each aim to add another layer of evidence and show how predicted dividend paying stocks perform relative to standard models. Starting with Panel A. Long and short equally weighted portfolios of Swedish monthly stock returns are formed based on predicted dividend payment. To be included in the long portfolio as a predicted payer, the firm must have paid either a quarterly dividend 3, 6, 9 or 12 months ago, a semi-annual dividend 6 or 12 months ago or an annual dividend 12 months ago.

In the short portfolios, all firms not included in the long portfolio, i.e. not predicted to pay this month, are included in *all other companies.* Included in *all other past dividend payers*, are firms that have paid a dividend in the past 12 months but are not predicted to pay this month. *Dividend 1, 4, 7, 10 months ago*, includes companies with a dividend paid in any of those months; the month after a predicted dividend. Those are not included in the long portfolio, i.e. not predicted to pay this month either.

We also construct difference portfolios, having a long position in the portfolio consisting of *predicted dividend payers* and a short position in each of the other short portfolios. The purpose is to demonstrate the difference between long and each of the short portfolios.

Each of the portfolios are then regressed on the Fama French four factors. Panel A presents the alphas, representing abnormal returns, of stocks after regression. For this panel regression, and majority of subsequent ones, we follow Hartzmark and Solomon (2013) and use the equation for the Fama French Carhartt Four Factor Model (FF4), given by:

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_{Mkt-Rf}\, R_{Mkt-Rf,t} + \beta_{SMB}\, R_{SMB,t} + \beta_{HML}\, R_{HML,t} + \beta_{UMD}\, R_{UMD,t} + \varepsilon_t \quad (1)$$

R_i denotes the return of the individual stock and R_f denotes the risk-free rate. Thus (R_i - R_f) shows expected abnormal return and (R_i - R_f) market premium. The other factors represent market risk (Mkt - rf), size (SMB), value (HML) and momentum (UMD). Alpha captures the abnormal return not explained by any of the other risk factors. Epsylon is the residual.

Table 2, Panel A: Four Factor Alphas for Portfolios, based on Predicted Dividends

The panel presents the intercepts of the Fama French Four Factor regression on each equally weighted portfolio and the difference of long and short portfolios. The long portfolio includes stocks that are predicted to pay a dividend this month. The short portfolios include non-predicted payers "all other companies", other past dividend payers but not predicted to pay now, and companies that have paid at least one dividend 1, 4, 7 or 10 months ago. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

	Equal weighted		
	Predicted dividend (long portfolio)		
Portfolio	**All other companies (short portfolio)**	**All other past dividend payers (short portfolio)**	**Dividend 1, 4, 7, or 10 months ago (short portfolio)**
Long	1.520*** (3.42)	1.520*** (3.42)	1.520*** (3.42)
Short	0.534*** (3.32)	0.492*** (3.14)	0.337* (1.85)
Difference	0.986** (2.31)	1.029** (2.41)	1.183*** (2.71)

The first row in Panel A represents a portfolio only consisting of solely predicted dividend payers. It shows that, after controlling for Fama French four factors, predicted dividend payers are alpha-positive and generate significant abnormal returns of 1.52% with a t-statistic of 3.42. Their abnormal returns are the highest compared to the other portfolios, suggesting that predicted dividend payers outperforms standard factors and performs better than the other groups. This further provides statistical evidence that there exists a dividend monthly premium in Sweden.

The second row represents the comparison of predicted dividend payers to the three different short portfolios (the other three categories). The short portfolios all earn less abnormal returns than the long one, but interestingly, they all show positive and statistically significant alphas; ranging from 0.337% to 0.534%. Our results are inconsistent with Hartzmark and Solomon (2013) who found negative alphas in two of the short portfolios, both for all other non-predicted payers and when dividend was paid 1, 4, 7 or 10 months ago. Since they define those to be months immediately after an anticipated dividend, they interpret the negative alphas as a result of a temporary price pressure that reverses, caused by dividend-seeking investors, as suggested by Shleifer (1986) and Greenwood (2005). Once investors unwind their positions, it causes negative returns right after the dividend has been paid.

The third row represents the difference between long and short portfolios. Each yields positive and significant alphas of 0.986%, 1.029% and 1.183% respectively. Our results display positive returns for all portfolios but higher for predicted dividend payers in dividend months, further supporting that a dividend month premium does exist and is not simply a risk-based anomaly.

Although we can not fully establish the reason for the frictions found earlier, for instance why we find only positive returns for our short portfolios. However, it is consistent with our previous and new findings. Given that a return premium exists, our non-predicted dividend paying stocks are reasonably expected to perform worse than our predicted dividend payers, which they do. However, given that the effect is weaker in Sweden compared to the U.S., the difference between predicted and non-predicted stocks would not have to be large enough to yield negative alphas either. Interestingly, this indicates that the temporary price pressure may not be the key driver in Sweden, contrary to the U.S. findings by Hartzmark and Solomon (2013).

Given that a monthly dividend premium does seem to exist and our previous tests have pointed towards it not being due to systematic risk, we want to make our results more robust. Therefore, **for Panel B**, we will perform an additional comparative test for two of the other short portfolios; for both *all other companies* and for *all other past dividend payers*. They will, once again, be compared to predicted dividend payers but this time using these regression models to examine if the results differ. To do this, we regress the monthly returns in our Swedish sample on three different regression models: CAPM, FF3 and FF4.

Table 2, Panel B: CAPM, FF3 and Factor Loadings from FF4—*All other Companies*

This panel presents the intercepts for regression on CAPM model controlling for excess market return, three factor regression controlling for excess market returns, SMB and HML. Fama French four factor regression controlling for excess market return, size, value and momentum. The monthly returns are regressed on long predicted dividends and short *all other companies*.

Long predicted dividend, short all other companies

	Alpha			Four-factor loadings			
Portfolio	**Alpha_CAPM**	**Alpha_FF3**	**Alpha_FF4**	**MktRF**	**SMB**	**HML**	**UMD**
Long	1.473*** (3.35)	1.532*** (3.44)	1.520*** (3.42)	0.817*** (7.02)	0.017 (0.12)	-0.000 (-0.15)	0.110 (1.26)
Short	0.645*** (3.06)	0.569*** (3.35)	0.560*** (3.30)	1.067*** (24.52)	0.389*** (7.81)	-0.000 (-0.62)	0.043 (1.33)
Difference	0.919** (2.10)	0.946** (2.22)	0.942** (2.21)	-0.218* (-1.95)	-0.344** (-2.53)	0.001 (0.27)	0.034 (0.40)

Panel B shows that the abnormal returns for the long portfolio are similar under different regression models. The alphas for predicted dividend are 1.473%, 1,532% and 1.520% and the alphas for short all other companies are 0.645%, 0.569% and 0.560% under CAPM, FF3 and FF4 model respectively. When constructing a portfolio with predicted dividend on the long leg and all other companies in the short leg, the alphas remain positive and statistically significant, indicating that predicted dividends outperform other firms on a risk-adjusted basis. However, the persistence of positive alpha in this portfolio suggests that the abnormal return may be due to other risk-factors rather than solely dependent on dividend driven anomaly.

The factor loading in this portfolio is shown to be statistically significant and negative on the market- and size-factor of (-0.218) and (-0.344) respectively, while the exposures to value and momentum are close to zero and also statistically insignificant. These loadings indicate that the strategy tends to load on large and low beta firms, which historically would predict lower, not higher return. Despite this, the portfolio produces a positive and statistically significant alpha of nearly 1% per month across all model specifications. This result suggests that the abnormal return cannot be explained by standard risk factors. This suggests that the anomalies may be driven by other mechanisms, potentially associated with dividend related effects.

Table 2, Panel C: CAPM, FF3 and Factor Loadings from FF4—*All other Past Dividend Payers*

Panel C presents nearly the same parameters as panel B. The only difference is that this has long predicted dividends and short *all other past dividend payers.*

	Long predicted dividend, short other past dividend payers						
	Alpha			Four-factor loadings			
Portfolio	**Alpha_CAPM**	**Alpha_FF3**	**Alpha_FF4**	**MktRF**	**SMB**	**HML**	**UMD**
Long	1.473*** (3.35)	1.532*** (3.44)	1.520*** (3.42)	0.817*** (7.02)	0.017 (0.12)	-0.000 (-0.15)	0.110 (1.26)
Short	0.422** (2.51)	0.489*** (3.05)	0.478*** (3.04)	1.018*** (25.43)	0.170*** (3.47)	-0.001 (-1.32)	0.074** (2.50)
Difference	0.963** (2.28)	0.991** (2.33)	0.985** (2.31)	-0.181 (-1.62)	-0.125 (-0.92)	0.000 (0.13)	0.056 (0.66)

The result of panel C also indicates positive alphas for both long predicted dividend and short other past dividend payers. None of the factor loadings in this portfolio is statistically significant, suggesting that the abnormal return in this panel cannot be totally explained by the common systematic risk factors. Taken together, the result aligns with our finding in panel B, suggesting that the positive abnormal return may plausibly arise from dividend related dynamics. The subsequent analysis will deepen our understanding of the underlying dynamics.

It is worth noting since replicating Hartzmark and Solomon (2013), is that they also included a liquidity factor in this table and subsequent ones, which we choose to exclude in its entirety. This because they did not find significant results more than that it simply reinforces existing effects. Therefore, we do not expect that the results of including it will alter our main analysis and thus it does not provide sufficient contribution to be included.

4.3. Daily Abnormal Returns around Dividend Months

Thus far, our results suggest that the abnormal returns are not purely driven by risk but that there exists some abnormal return in Sweden when dividends are expected to be paid when compared with other firms with no anticipated dividend. However, the monthly patterns are less significant and more inconsistent. Thus, the effect of this premium appears to be significantly weaker compared to the U.S. setting, potentially connected to Sweden's annual, rather than quarterly, dividend frequency.

One of the more notable findings however, appears in Table 2, Panel A. Since we have positive alphas the month immediately after the predicted dividend, we lack evidential support for a reversal of price pressure. It could potentially also mean that there may in fact not have existed any price pressure to begin with. If any of the two holds true, that we either lack a price reversal afterwards or simply a price pressure to begin with, it would stand in contrast to the key findings Hartzmark and Solomon (2013). This since they establish temporary price pressure to be the main driver behind the dividend month premium in the U.S.

In order to investigate the existence of temporary price pressure, we will decompose the dividend month premium into daily pieces. This allows us to focus on the abnormal returns around dividend cycles and identify *when* the abnormal returns occur and are most prominent.

Table 3 allows us to measure average abnormal returns of dividend paying firms at each point in the dividend cycle, and further examine how the daily characteristic-adjusted returns vary around the dividend event. Based on the results, we can observe whether there is a price pressure effect (build up) from announcement day leading up to the ex-day or if the price effects are solely concentrated around the ex-day itself. If that would be the case, it would be consistent with the ex-dividend effect and potentially make tax-related explanations proposed by Elton and Gruber (1970) more relevant.

For this section of the analysis we use daily closing prices from Finbas (2025) for our entire sample period. To simplify, we follow Hartzmark and Solomon (2013) and only include our most dominant dividend frequency; annual dividend paying firms. Then we define five event windows, each window corresponding to an event period or date connected to the dividend payment. We will deviate slightly from Hartzmark and Solomon (2013) by excluding both liquidity factor and trading volume as neither holds practical relevance for our main analysis.

We start by defining our five event windows: (1) the actual announcement day, (2) the predicted announcement day, (3) the interim period, (4) the ex-day itself, and (5) the 40-day post-ex-day period. The predicted announcement day is defined as per Hartzmark and Solomon (2013), thus defined as 63 trading days after the previous announcement date. The interim period is defined as one day after the announcement date until one day before ex-day. Then we also have an additional variable in the list: the announcement to ex-day window. That is a cumulative window, capturing the daily abnormal returns that have accumulated during the entire interim period.

Since no new information is expected to arrive during that period, we expect no abnormal returns. Any abnormal returns could thus indicate a price pressure due to increased demand from dividend-seeking investors buying the stock before ex-day; in order to capture the dividend.

The next step is computing daily characteristics-adjusted returns for each of the five windows, using the following equation (2):

$$AR_{i,t} = R_{i,t} - R_t^{\text{match}} \tag{2}$$

$AR_{i,t}$ denotes daily characteristic-adjusted abnormal returns. We compute daily returns and subtract returns of a matched portfolio, denoted R_t^{match}.

The matched portfolios used in this equation are formed by sorting stocks into quintiles based on market capitalization, B/M ratio[2] and momentum. This is done to only capture the "abnormal part", since adjusting each stock's return for behaviours considered normal for similar firms.

Consequently, the characteristics-adjusted abnormal returns are summed up for each event window to compute cumulative abnormal returns (CARs) using the following equation (3):

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \tag{3}$$

$CAR_i(t_1t_2)$ denotes cumulative abnormal returns, all daily characteristic-adjusted returns ($AR_{i,t}$) during each window.

[2] Calculated as market capitalization divided by book value of equity

Table 3: Daily Abnormal Returns around Windows in Dividend Cycle

This table presents daily characteristic-adjusted abnormal returns across the dividend cycle for Swedish firms. Daily abnormal return is calculated as the stock's actual return, minus the return of a matched portfolio with similar size, value and momentum characteristics. We divide the dividend cycle into 5 event windows and 1 additional cumulative window; and compute CARs in each window: *the announcement day, predicted announcement day, the interim period, the ex-day itself, the cumulative announcement to ex-day window, and the 40-day post-ex-day period.* A predicted announcement day 63 days after its previous announcement date. Announcement to ex-day is a combined window measuring cumulative returns between announcement date until ex-day. A more visual graph of the return patterns can be found in *Appendix B*. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

Average characteristic-adjusted returns

Period	Return
Announcement day	0.467 (1.57)
Predicted announcement day	-0.128 (-1.10)
Interim period	-0.017 (-0.33)
Ex-day	0.698*** (4.29)
Announcement to ex-day	0.579 (0.10)
40 days after ex-day	-0.040** (-2.19)

Table 3 shows a positive CAR on the announcement day, implying that Swedish dividend paying firms earn on average positive abnormal returns of 0.467%. That would potentially support information-based announcement effects (Engelberg, McLean and Pontiff, 2018; Miller and Rock, 1985). We observe negative CARs both during the interim period but then it has a positive peak on the ex-day, only to experience a smaller reversal 40 days afterwards. The cumulative window has seemingly positive CAR, indicating a temporary buying pressure during interim. On the other hand, the former negative CARs contradicts the idea of price pressure since we would expect a build-up of increased CAR as we approach ex-day; which is now not the case.

Overall, most of our results are statistically insignificant, suggesting that the positive accumulated returns are merely a reflection of the ex-day peak; and none of those results are sufficient enough to draw conclusions based on. We believe the statistical insignificance to either be due to weak effects, unclear patterns or because Sweden is a significantly smaller sample than the U.S. The only significant results we obtain are for the ex-day and also the 40-days after ex-day. The CAR on ex-day shows that firms on average earn positive abnormal returns of 0.698%, which is both high and statistically significant at a 1% level. This provides evidence of the existence of an *ex-day effect* rather than temporary price pressure. This is further supported by our 40 days post ex-day window. Although showing a slightly negative CAR of (-0.04%), the low magnitude suggests that it only reflects a mild price reversal after the ex-day price jump.

If there would exist a price pressure ahead of ex-day, we would expect a significantly larger reversal. For instance, Hartzmark and Solomon (2013) shows a large negative CAR of (-0.719%). Contrary, they report a smaller ex-day return of 0.262%, yet statistically significant. Our ex-day effect is substantially larger. While U.S. investors are suggested to be dividend-seeking, trading before ex-day to capture dividends, Swedish investors evidently do not show similar behaviours. Consistent with Elton and Gruber (1970) this could be due to the different tax systems and investor clientele that Sweden exhibits, compared to the U.S. As established, Sweden applies the 3:12 rules to certain companies and many investors have ISK-accounts, both allowing more favorable dividend taxation. That would reasonably give them more incentive to chase dividends to obtain the tax advantages and hence create buyer pressure. However, the return patterns we observe display the opposite. One underlying reason could be the standard 30 percent flat rate, applied to firms not qualifying for the 3:12 taxation rules or investors not having ISK accounts. That could make them trade on ex-day or after, to avoid receiving the dividends and its associated tax-disadvantages. That could potentially explain the price jump on ex-day.

Furthermore, since annual dividends are generally larger in size, an unfavorable dividend tax will be heavier and give them more incentive to avoid it. Another plausible explanation is that having an annual dividend, in contrast to a more frequent quarterly dividend, may lower investors incentive to employ dividend-chasing strategies. This pattern could also be explained by the investor clientele. Swedish investor norms are more long term horizon, making them less inclined to exhibit short-term dividend chasing behaviours.

Concluding this section, Hartzmark and Solomon (2013) find a clear and significant price build-up during interim, with steadily increasing return peaking on the ex-day and with a strong reversal afterwards. Their results thus provide strong evidence for temporary price pressure around dividend events. However, our findings are inconsistent with theirs.

According to our results, the sample returns do not display a build-up from announcement to ex-day but rather the opposite. Furthermore, the results until ex-day are all statistically insignificant as the only statistically significant abnormal returns are concentrated entirely on the ex-day. It is then followed by a small reversal 40 days afterwards, but not large enough to serve as evidence for reversed price pressure. Thus, we do not find evidential support for temporary price pressure, caused by dividend-seeking investors to be the key driver of the dividend month premium in Sweden. We do however find evidence for an ex-day effect, potentially due to different tax clienteles. There could also be other determining factors causing demand shifts, such as macroeconomic factors. We will investigate this in the following section.

4.4. Dividend Month Premium Dependent on Dividend Demand and Economic Uncertainty

In this section investigate whether dividend month premium varies with demand for dividend and since we cannot directly observe demand, we will measure it across different broader economic conditions. As Baker and Wurgler (2004) suggests, dividends are often viewed as a safe and guaranteed income, and thus attractive during periods of economic uncertainty. Therefore, we would expect the dividend premium to become stronger during these periods, as demand for dividend ought to increase if investors have preferences for income and safety.

To examine this, we will measure economic uncertainty with two variables; market volatility and state of economy. Furthermore, if investors desire dividends for the aforementioned reasons, they likely have a greater preference for companies with higher dividend yield.

To test this we will construct Table 4. It builds directly on the event windows and abnormal return patterns already obtained in Table 3, however excluding *predicted announcement day* as simply being a check in Table 3. Since it does not relate to any trading, information disclosure or direct investor behaviour it is irrelevant in Table 4; which mainly aims to understand whether certain variables amplify or weaken the trading effect. Table 3 shows us *when* abnormal returns occur, while table 4 tells us how they vary with the demand; whether we observe higher abnormal returns, thus stronger dividend demand during economically uncertain times. If it holds true that the dividend month premium is driven by price pressure and dividend-seeking investors' demand, we expect stronger abnormal returns when our demand is considered high.

In order to look at different demand parameters we will run three simple regressions to build three separate panels. From Table 3 we get our dependent variable, our characteristics-adjusted daily abnormal returns in each of the five windows. We will regress it on each of our three explanatory variables (IV); *dividend yield, recession dummy and volatility proxy* (market volatility). The intercepts are not of economic interest in this context and are therefore not interpreted. Our focus is on the explanatory variables and their ability to explain the abnormal returns around dividend events.

Table 4, Panel A: Average Daily Abnormal Returns regressed on Dividend Yield

This panel presents the characteristics-adjusted abnormal returns in each window regressed on the explanatory variable **dividend yield,** where dividend yield is a valuation-based payout proxy. It is calculated based on our SizeBM file as: (book value/market value), and since reported annually they are averaged across all firms in each calendar year. The five windows are *the announcement day, the interim period, the ex-day itself, the 40-day post-ex-day period and the cumulative announcement to the ex-day window.* This panel also presents the effect dividend yield has on abnormal returns in each window, and the R^2 parameter representing the explanatory of dividend yield on abnormal returns. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

	Announcement day	Interim period	Ex-day	Announcement to ex-day	40 days after ex-day
Constant	3.037* (1.80)	0.461 (1.58)	0.694 (0.75)	0.514* (1.81)	-0.079 (-0.76)
Dividend yield	-3665.597 (-1.55)	-682.564* (-1.66)	6.756 (0.01)	-725.434* (-1.82)	57.017 (0.39)
R^2	0.006	0.000	0.000	0.000	0.000
N	392	20,200	393	20,985	17,080

The results from Panel A do not display any clear pattern across the different event windows. The coefficients for announcement day, interim and the cumulative window are negative while the others are positive. However, although a few coefficients are weakly significant[3], the inconsistent signs and magnitude makes it difficult to interpret any pattern as proof of a concrete effect. The magnitudes are difficult to interpret as they may be due to the construction of our dividend yield as a book-to-market proxy, in absence of official free-to-access dividend yield data.

Overall, we cannot find any strong evidence pointing to a systematic relation between a firm's dividend yield and its abnormal returns in dividend months. Thus, the Swedish dividend premium does not appear to be determined by dividend yield, contrary to Hartzmark and Solomon (2013) who find dividend yield to partly explain the U.S. dividend premium. This is however consistent with our previous results, pointing towards the absence of price pressure. If it would be driven by investors who seek out stocks with higher dividend yield, we would expect increased buying pressure, as a result of higher dividend demand, which we can not observe. This is potentially attributed to institutional differences such as Sweden’s annual dividend, making dividend yield more irrelevant and short-horizon return behaviour less attractive.

[3] Only at a 10% significance level

Table 4, Panel B: Average Daily Abnormal Returns regressed on Recessions *(Dummy)*

This panel presents the characteristics-adjusted abnormal returns in each window regressed on the dummy variable **recessions**, where we identify all month with negative GDP-growth as the economy being in recession. We assign the recession months with 1 and otherwise 0. The five windows are *the announcement day, the interim, the ex-day, the 40-day after ex-day and the cumulative announcement to the ex-day window.* This panel also presents the effect recessions have on abnormal returns in each window, and the R^2 represents the explanatory of recessions on abnormal returns. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

	Announcement day	Interim period	Ex-day	Announcement to ex-day	40 days after ex-day
Constant	0.376	-0.020	0.767***	0.002	-0.038*
	(1.17)	(-0.35)	(4.32)	(0.04)	(-1.89)
Recessions	0.703	0.017	-0.433	0.019	-0.009
	(0.79)	(0.12)	(-0.97)	(0.13)	(-0.20)
R^2	0.002	0.000	0.002	0.000	0.000
N	392	20,200	393	20,985	17,080

The results from Panel B indicate that the recession dummy does not have much explanatory power for abnormal returns around dividend events. Most R^2-values are close to zero across all windows, slightly higher for announcement day and ex-day, but overall the coefficients for recessions are statistically insignificant. This suggests that abnormal returns during dividend months in Sweden behave similarly regardless of the state of economy.

Hartzmark and Solomon (2013) find limited evidence that recessions strengthen the U.S. dividend month premium, but in our case the relationship is even weaker and essentially absent. This further fails to provide evidence that firm returns during announcement periods are more correlated with macroeconomic risks (Savor and Wilson, 2011). Although dividend may be viewed as a safer income, this provides supporting evidence that the patterns documented in Table 3 do not appear to be driven by demand shifts originating from broader macroeconomic conditions.

Table 4, Panel C: Average Daily Abnormal Returns regressed on Volatility Index *(VIX/10)*

This panel presents the characteristics-adjusted abnormal returns in each window regressed monthly **volatility index**. Since Sweden does not have a VIX we construct a Swedish equal-weighted market index from our daily stock prices. It is converted to a daily return series, calculating a 30-day rolling standard deviation of the market volatility. To obtain a monthly volatility index, we average this within each month. It is scaled by dividing by 10, mirroring Hartzmark and Solomon (2013) and finally merged with the daily abnormal returns by each month. The five windows are *the announcement day, the interim period, the ex-day itself, the 40-day post-ex-day period and the cumulative announcement to the ex-day window.* This panel also presents the effect VIX has on abnormal returns in each window, and the R^2 parameter representing the explanatory power of market volatility on abnormal returns. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

	Announcement day	**Interim period**	**Ex-day**	**Announcement to ex-day**	**40 days after ex-day**
Constant	0.675*	-0.040	0.815***	-0.012	-0.053**
	(1.80)	(-0.65)	(4.21)	(-0.20)	(-2.41)
VIX divided by 10	-0.538	0.055	-0.282	0.040	0.038
	(-0.96)	(0.67)	(-1.12)	(0.50)	(1.06)
R^2	0.002	0.000	0.003	0.000	0.000
N	391	20,194	393	20,978	17,080

Panel C shows that market volatility does not appear to explain abnormal returns around dividend events in Sweden. Across all windows, the VIX/10-coefficient is small in magnitude and statistically insignificant. This indicates that months with higher or lower market volatility do not systematically affect the abnormal return patterns documented earlier.

Our results stand in contrast to Hartzmark and Solomon (2013), who find that volatility plays a more meaningful role in the U.S. setting, amplifying certain return patterns around dividend events. The absence of such effects in Sweden is consistent with our earlier broader findings; that the Swedish dividend premium is comparably weaker and more concentrated around the ex-day itself, thus showing limited signs of temporary price pressure to begin with. Since the underlying dividend premium itself is smaller, there is naturally less dynamic for volatility to influence.

Overall, neither of our three explanatory variables dividend yield, recessions and market volatility seem to predict our abnormal returns during the dividend cycle; indicating that shifts in these demand parameters do not significantly amplify the returns patterns found in Table 3. This further suggests that Sweden does not exhibit the price-pressure mechanism found in the U.S. Instead, the Swedish pattern appears consistent with tax-driven or mechanical trading effects occurring specifically on the ex-dividend day.

4.5. Return sorted by Dividend Frequency

We began our analysis by looking at raw monthly return, conditional on the month when dividend was expected. We could not find a clear pattern in those firms with anticipated dividends peaks in that month. That approach lacks robustness as we only considered raw return and we did not consider the differences in dividend frequency across firms. Given that annual dividends constitute the majority of the observations, merging the different dividend frequencies may distort the return pattern. Moreover, we examine abnormal returns in months with anticipated dividends and how the magnitude of returns may vary depending on different frequencies. This allows us to examine if our abnormal returns follow the natural dividend cycles, since that would provide evidence that the abnormal returns are a premium resulting from dividends. If our results are consistent with Hartzmark and Solomon, we should expect to see peaks in months 3, 6, 9 and 12 for quarterly dividend payers, months 6 and 12 for semi-annual and month 12 for annual payers.

To address this we move to Table 5, in which we construct an equally-weighted portfolio which are long predicted dividend payers, and short firms with no predicted dividend. We then regress the portfolio's excess return on the Fama French Carhartt four factors.

Table 5: Abnormal Returns by Dividend Frequency

This table presents the intercept of Fama French four factor regression on our Swedish sample of. They are sorted based on the timing of past dividends, combined with the different dividend frequency types. Dividend types are classified as: *quarterly, semi-annual* or *annual dividends*. A stock is classified as *unknown frequency* if it pays dividend but the frequency does not fall under any of the other three.

Dividend N months ago	All	Quarterly	Semiannual	Annual	Unknown
1	-0.916**	-0.343	-0.556	-0.739	-1.344
	(-2.03)	(-0.68)	(-0.79)	(-1.54)	(-1.37)
2	-0.290	0.613	-0.456	-0.639	-0.072
	(-0.71)	(0.88)	(-0.87)	(-1.46)	(-0.08)
3	0.457	0.829	0.454	-0.326	-0.102
	(0.91)	(1.31)	(0.56)	(-0.82)	(-0.11)
4	0.409	0.018	-0.261	0.718	0.736
	(0.83)	(0.04)	(-0.40)	(1.42)	(0.73)
5	-0.145	0.578	0.260	-0.425	-0.513
	(-0.46)	(1.28)	(0.41)	(-1.47)	(-0.61)
6	-0.290	0.528	-1.155	-0.277	0.782
	(-0.59)	(0.94)	(-1.33)	(-0.66)	(0.69)
7	0.353	0.530	0.265	0.117	1.838
	(0.39)	(1.05)	(0.36)	(0.28)	(0.66)
8	-0.130	-0.723	-0.929	0.795*	-3.435***
	(-0.31)	(-1.25)	(-1.13)	(1.73)	(-3.66)
9	0.693*	0.704	-0.242	0.837**	1.130
	(1.94)	(0.98)	(-0.36)	(2.08)	(1.09)
10	0.121	0.966	-0.002	0.287	-1.222
	(0.29)	(1.38)	(-0.00)	(0.53)	(-0.94)
11	0.200	0.093	0.299	0.287	-0.182
	(0.55)	(0.20)	(0.39)	(0.63)	(-0.20)
12	-0.571	0.045	-0.507	0.003	0.589
	(-1.23)	(0.07)	(-0.63)	(0.01)	(0.37)

Table 5 shows that all returns are negative and statistically significant in one month since the last dividend regardless of dividend frequency. This is consistent with the post dividend price reversal due to the decrease in investor's demand after the ex dividend date as shown in Hartzmark and Solomon (2013), where stock price declines following ex-dividend date. The observation of quarterly dividends has shown that the returns peak at 3, 5, and 9 months since the last dividend, annual dividend payers exhibit a return peak at 9 months since last dividend, significant at a 10% level and semi-annual dividend peaks at 7 months. However, Hartzmark and Solomon (2013) find a clear pattern of the dividend month premium, showing that the returns peak precisely on months when dividends are expected; at 3, 6, 9 and 12 months since the last dividend.

Contrary to their findings, our results do not exhibit a clear pattern of high abnormal return in months with predicted dividend, providing little evidence of a monthly dividend premium. Even after controlling for the standard Fama French Carhartt four factor, the absence of a clear pattern on dividend month persists. The findings in this table are consistent with our earlier observation in Table 1, Panel A; where the raw return analysis also provides no indication of systematically higher returns in dividend months.

The weaker and less significant effect of abnormal return around dividend month in Sweden compared to the U.S. is plausibly stemming from the institutional differences, further affecting investors behavior. Annual dividend frequency dominates the Swedish market, limiting the incentive for chasing dividends. Moreover, most Swedish investors adopt a long-term investment style, and may perceive the short term trading around dividend date to be less appealing.

4.6. Long Term Dividend Effect

Although our earlier results reveal a weak pattern of dividend month effect, we also examine whether any observable effect persists long-term. In this section we examine return over a nine-year horizon based on the timing of the last dividend. We follow the methodology of Hartzmark and Solomon (2013) and test whether the high return in predicted dividend month continues to hold even when the dividend timing signal is shifted forward in time.

To do this we construct Table 6, where we form an equally-weighted portfolio and the monthly return of each portfolio is regressed on the Fama French Carhartt four factor. In the long leg of the portfolio, we sort stock returns on predicted dividend payment and later add lags up to 9 years. For instance, a one year lag for a quarterly dividend corresponds to when they paid a dividend 15, 18, 21 or 24 months ago, while a two year lag corresponds to firms that paid dividend 27, 30, 33 and 36 months ago. The same logic applies to all categories of dividend frequency and to each subsequent lag year. In the short leg of the portfolio, we include stocks with no predicted dividends in the same lagged year window.

Table 6: Long-Term Persistence of Dividend Month Premium

This table presents the intercept from Fama French four factors regressed on monthly return of an equal-weighted portfolio. For each lag horizon, the long portfolio consists of predicted dividend payers and the short portfolio consists of firms without predicted dividend. The top number shows coefficients, the lower number in parenthesis shows t-test statistics and *, ** and *** shows statistical significance of 10%, 5% and 1% respectively.

	Equal weight
Years lagged	**Equal weight**
0	0.049 (0.18)
1	0.087 (0.37)
2	-0.038 (-0.13)
3	0.143 (0.38)
4	-0.153 (-0.54)
5	0.463 (1.22)
6	0.188 (0.50)
7	-0.193 (-0.44)
8	-0.133 (-0.21)

Table 6 shows that the intercepts, although earning returns fluctuating widely between positive and negative, all lack statistical significance across the lagged horizons. This indicates that there is no evidence of significant long-term persistence of the dividend month premium across observation years.

Furthermore, we do not find any recurring positive significance alpha Across the 9 year lag horizon that would indicate any abnormal returns in dividend month to reappear in subsequent years. The absence of long-term persistence we find is consistent with Hartzmark and Solomon (2013), although weaker and less significant. Still it indicates that any dividend premium in Sweden reflects short-term trading rather than long-term effects on stock prices or long-lasting changes in fundamental values.

4.7. Seasonality and Calendar Effects

Lastly, we want to investigate whether the positive abnormal returns are dividend-driven or if our observed return patterns are rather shaped by a broader seasonality. Heston and Sadka (2008) propose the existence of a *calendar month effect*, implying that some stocks earn higher returns every year. To do this we construct Table 7, to examine whether the dividend month premium is stronger in certain calendar months. We build an equal-weighted portfolio of *predicted dividend payers* and *all other past payers*. Then we compute the return difference to examine how well predicted dividend payers perform relative to the non-predicted payers. Since we already know from previous analysis that they outform, we investigate whether the positive abnormal returns are concentrated in any specific calendar month. Such a seasonal pattern would have months that consistently earn either high or low returns, creating a predictable pattern with anomalies in particular months, not possible to attribute to other factors such as temporary price pressure.

Table 7: Dividend Month Premium by Calendar Months

This table presents the intercept from the Fama French four factor regression of Swedish monthly stock returns sorted on predicted dividend payment on different calendar months. The monthly stock returns are regressed on excess market return, SMB, HML and UMD. Predicted dividends are stocks that have quarterly dividend frequency that paid dividend 3, 6, 9 or 12 months ago, semi-annual that paid dividends 6 or 12 months and an annual that paid dividend 12 months ago. "All other past dividend payers" includes companies that paid a dividend in the past 12 months but are not predicted to pay a dividend this month based on the above formula. The intercept presented in the tables are the abnormal returns to the different portfolio long predicted dividend payers and short all other past dividend payers that are not expected to pay dividend now. The top number is the intercept that presents the portfolio abnormal returns, the lower number in parentheses is the t-statistic, and *, ** and *** indicates statistical significance at the 10%, 5% and 1% level respectively.

	Equal weighted
Month	**Predicted dividend minus all other past dividend payers**
January	-2.414 (-1.09)
February	3.627 (1.50)
March	0.158 (0.27)
April	-0.673 (-1.49)
May	1.641*** (6.56)
June	1.029*** (3.15)
July	0.706 (0.29)
August	-0.049 (-0.02)
September	0.645 (1.11)
October	-0.999 (-1.28)
November	0.477 (0.60)
December	-0.471 (-0.47)

Table 7 shows that most of our results are insignificant. However, two of our results stand out markebly and are statistically significant on a 1% significance level; May and June. The positive abnormal returns predicted dividend payers earn are strongly concentrated in May and June, with 1.641% and 1.029% respectively at a 1% significant level. While Hartzmark and Solomon (2013) found that the returns are not concentrated around any particular month but simply due to price pressure, our results are evidently stating the opposite. This disparity is likely explained by the difference in dividend frequency as Sweden's market is dominated by annual dividends, while in the U.S. predominantly pay quarterly dividends distributed throughout the year.

Therefore, although we cannot identify a clear calendar month effect throughout the year, as suggested by Heston and Sadka (2008), we find strong evidence of seasonal effects; namely the Swedish dividend season. Consistent with Lakonishok and Vermaelen (1986), Sweden's return patterns seem to be subject to seasonal effects. This is highly expected since Sweden exhibits clustered dividend payments, since having one main dividend season which is concentrated around late March and mid-May. These observed patterns provide strong evidence that dividend payers earn abnormal returns exactly during the single dividend season.

5. Conclusion

The main objective of this thesis was to investigate if the phenomenon Dividend Month Premium found in the U.S. stock market can also arise in a notably different institutional setting, such as the Swedish market. This holds practical relevance since comparing the two markets provides external validity of the phenomenon, examining whether it is globally relevant or exclusively limited to the U.S. institutional setting.

Answering our first research question, whether we can find evidence of the dividend month premium or similar phenomena, our empirical analysis points towards a mild dividend related pattern. The monthly return analysis indicates that *predicted dividend payers* tend to earn higher abnormal returns compared to other groups during the month of expected dividend. This pattern remains consistent even after adjusting for risk; both relative to the risk free rate risk in table 1, panel B and Fama French Carhartt four factor mode in table 2. In addition, predicted dividend payers seem to also earn higher abnormal returns, relative to other groups, even outside their predicted dividend months. This implies that investor demand for dividends around predicted dividend months is not strong enough to raise prices in a way that produces statistically significant abnormal returns. Consistent with the prior U.S. study, our empirical result challenges the traditional risk-based explanation, proving that higher return in predicted dividend months is not driven by higher risk. Thus, although the effect is significantly weaker, we do find supportive evidence that the dividend month premium does exist in Sweden as well.

However, addressing the second research question, our results point towards a notable disparity between the U.S. and Sweden. Although finding dividend related patterns in Sweden, the magnitude and consistency of our findings are not as prominent as the U.S. Inconsistent with Hartzmark and Solomon (2013), we could not find evidence of any *temporary price pressure* from dividend-seeking investors. As shown in Table 1, Panel A and Table 5, the finding lacks a clear pattern.

An interesting difference is also that while Hartzmark and Solomon (2013) identified a distinct pattern in the U.S. with a significant build-up between announcement day all up until ex-day, followed by a strong reversal afterwards, our analysis shows the opposite. Instead, based on our analysis of daily characteristic-adjusted returns in Table 3, Sweden exhibits only a significant peak on the ex-days and a slightly negative reversal in 40 days after the ex-days. The absence of a build-up and strong reversal, together with the significant ex-day jump points towards an ex-day effect rather than serving as evidence for a temporary price pressure. Another interesting finding is that contrary to the U.S., where seasonal effects did not seem to exist, in Sweden we find significant abnormal returns in May and June.

That leads us to our third research question, to investigate likely explanations to these discrepancies. As we anticipated, many results in our analysis point toward the institutional differences. For instance, we attribute the abnormal returns in May and June to the fact that Sweden has one single dividend season, concentrated around March to mid-May. That means that ex-day ought to occur around May and June and the clustered dividend payments create the seasonal effect.

Another key difference is seemingly the dividend frequency. Sweden's annual dividend may be a key contributor to the weak dividend month premium we find, since both making short-horizon return behaviour less attractive as well as giving investors less incentive to adopt dividend-chasing strategies. That further relates to another key discrepancy, the investor- and tax clientele. Since Sweden has a different tax clientele, we expect investor expectations and behaviours to adapt accordingly. For instance, Swedish investors overall show less dividend-seeking and short-term trading behaviours, and more tendencies to invest long-horizon.

To conclude, our study contributes by providing an empirical analysis of *dividend related anomalies* in Sweden, a market where such price dynamics have not been widely examined. The weaker dividend effect we observe in Sweden compared to the U.S. highlights the importance of institutional setting as it affects and shapes investor behaviors.

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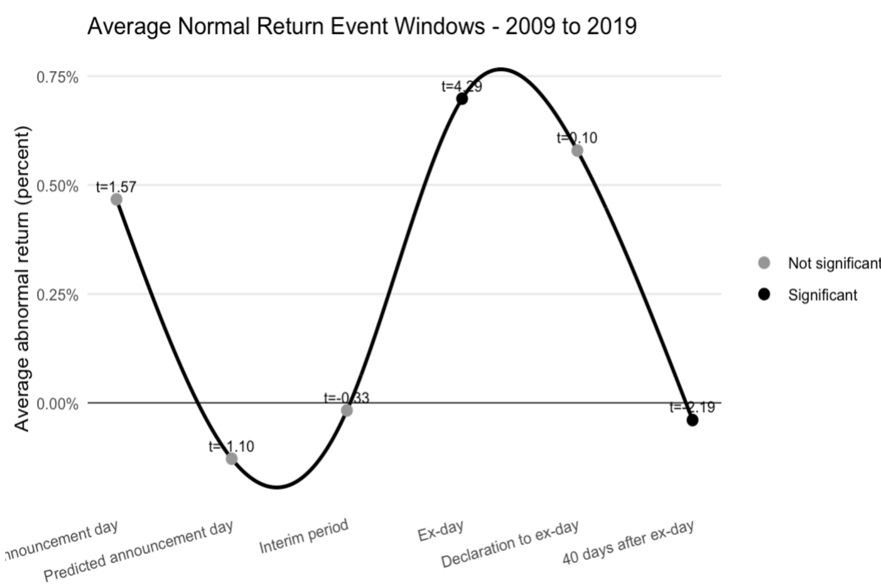
7. Appendices

Appendix A: Distribution of Dividend Frequencies of our Swedish sample

Dividend frequency	Percent of dividend observations
Annual	76.32
Semi-annual	14.04
Quarterly	5.56
Unknown	3.80
	0.29

Appendix B: Supporting Graph for Table 3



Appendix C: AI-appendix

Although our work is independently produced we have used ChatGPT as an AI-tool. It has been used to control our R-codes, especially helpful when we encountered programming obstacles and errors, but also served as an invaluable tool to help us improve our writing quality. We have for instance used it to make our language slightly more academic and concise, to be better suited as a financial journal, but also asked it to read parts of our thesis; in order to criticize, ask questions and thus point out weak points and identify parts that were ambiguous and unclear for the reader. All outputs and ideas from ChatGPT were screened critically, and final decisions are from our own.