# Master Thesis Finance

## The market impact of stock recommendations:
Evidence from the Dutch TV show *Business Class*

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**Abstract**

This study analyzes whether Dutch stock recommendations provided by financial analysts in the Dutch TV show *Business Class* cause abnormal returns and trading volumes over different time horizons for the period 2017-2020. I document strong evidence of short-term abnormalities for buy recommendations and in particular for small stocks. However, long-term investors would not have achieved abnormal returns after controlling for market risk, size, book-to-market and momentum effects, in line with the price-pressure hypothesis. For sell recommendations I mainly find negative short-term abnormalities prior to the show as a result of contaminating news events, but prices continued to drift down in the long-term, supporting the information hypothesis.

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# 1. Introduction

"Any Monkey Can Beat the Market" was the headline of an article from Forbes in 2012[1]. The author of the article refers to professor Malkiel's book "A Random Walk Down Wall Street". This book states that "A blindfolded monkey throwing darts at a newspaper's financial pages could select a portfolio that would do just as well as one carefully selected by experts". While the advice was not literally to throw darts, of course, it does emphasize that not everyone is convinced about the value of stock recommendations provided by experts. The semi-strong efficient market hypothesis of Fama (1970) states that stock prices in an efficient market reflect all the available information and that prices adjust quickly to any new public information that becomes available. Therefore, holding a portfolio based on stock recommendations should not give an abnormal return because all publicly available information must already be included in the stock price. On the other hand, stock recommendations could impact stock prices because 'naïve' investors believe that they can profit from public available information. But if a recommendation does not contain inside and new relevant information, the price of the recommended stock will probably reverse back within a short period after the recommendation. Whether analysts' recommendations have an (temporally) impact on stock prices and create value for investors over different time horizons is a much debated topic in academics and has been widely investigated over decades.

Cowles (1933) is the first researcher to provide empirical evidence that stock recommendations have no impact on stock prices. However, since then, many researchers provide evidence that stock recommendations do impact stock prices and can create value for investors over different time horizons. Since most of these related studies are done in the United States, it may be interesting to see if these results hold while using data from the Netherlands. To my knowledge, there is only one study that investigates the market impact of Dutch stock recommendations. This study of Wijmenga (1990) focuses on stock recommendations which are published in three Dutch written media sources. He concludes that stock recommendations result in significant abnormal returns in the week of the publication, but that there is not a significant long-term effect. Different from Wijmenga (1990), this study analyzes Dutch stock recommendations provided by financial analysts in the television program *Business Class*.

*Business Class* is a Dutch program presented by real estate and entrepreneur Harry Mens. The show is broadcasted every Sunday morning on Dutch television and has different subjects, such as Business and Politics, Lifestyle and Health, and Finance. In the Finance

[1] https://www.forbes.com/sites/rickferri/2012/12/20/any-monkey-can-beat-the-market/#20bc2613630a

subject, Harry Mens invites finance experts – either analysts or wealth managers – to talk about their opinions for attractive investment opportunities. Therefore, I investigate whether these stock recommendations result in abnormal returns and trading volumes over different time horizons. Hence, the following main research question is formulated:

***Do Dutch stock recommendations provided by financial analysts in the TV show Business Class cause abnormal returns and trading volumes over different time horizons?***

The main purpose of this study is to find an answer to this research question and thereby contribute to the existing literature on this subject, but with the Dutch market as the focus point. Most of the related studies have been done in the United States, especially those that focus on stock recommendations made on television. In the context of this study, the "Mad Money" show hosted by Jim Cramer is most similar, and has attracted many researchers including Neumann and Kenny (2007), Karniouchina et al. (2009), Keasler and McNeil (2010), Lim and Rosario (2010), and Engelberg et al. (2012). Therefore, their methodologies will be used as a guide for this research. Although these studies will be used as a guide, my research differs from theirs in different aspects and is therefore economically important for several reasons. First of all, as mentioned earlier, is the literature in the Netherlands with regard to stock recommendations relatively scarce. Most of the related research has been done in the United States, which is generally known as an efficient market. However, it is not obvious that this also applies to smaller markets, such as the Netherlands, making this study an expansion to the existing international literature. Second, while the researchers of Mad Money use "overnight abnormal returns" to measure the impact of the stock recommendations, this is not possible for *Business Class*. The stock market is closed when *Business Class* is broadcast on television (Sunday), which implies that a different methodology should be used to measure the weekend impact of the recommendations. Lastly, *Business Class* invites various financial analysts, while Jim Cramer is the only analyst for the Mad Money show. This makes it interesting to investigate whether there is a different impact among the analysts.

Regarding the results, I first performed a traditional event study analysis to compute the short-term effect of the recommendations on asset prices and trading volumes. I document strong evidence that buy recommendations result in statistically significant positive abnormal returns and trading volumes on the event day and the days following. Furthermore, I show abnormal volumes prior to the show, which could be caused by recommendations based on trading volume ("hot" stocks) or information leakage regarding a future recommendation. For the sell recommendations, I do not find strong statistical evidence of a short-term effect. Instead, I document significant abnormalities preceding the event, which is probably caused by contaminating news events. By calculating the abnormalities of sell recommendations without a news event for robustness, no statistical evidence of front-running is found. Although the results for the sell recommendations are not very strong, there is at least some suggestive evidence that there is little reaction from investors on those recommendations. Second, I formed calendar-time portfolios to assess whether long-term investors would have achieved abnormal returns using the CAPM, three-factor model and four-factor model. I find that the portfolio of buy recommendations has no positive statistically detectable alpha, supporting the price-pressure hypothesis. Although analysts (probably) base their sell recommendations on the current news, the portfolio of sell recommendations statistically underperforms the market and continues to decrease for the following 300 days, which suggests that the information hypothesis holds. Finally, the factors which drive the size of the abnormalities is studied in a cross-sectional regression analysis. Following the attention parameters of Engelberg et al. (2012), I document significant duration coefficients for the buy recommendations and significant viewership coefficients for the sell recommendations, which is the only evidence that favors the attention-grabbing hypothesis. The index dummies AEX, AMX and AScX show larger abnormal returns and trading volumes of small firms relative to large firms. Finally, there is some evidence that recommendations of independent analyst Geert Schaaij exhibit the largest abnormalities, while Martine Hafkamp is the least ‘favorite’ analyst.

The remainder of this paper is structured in the following way: first, Chapter 2 presents an overview of the literature related to this topic. After this overview, the main research question and hypotheses are formulated. Subsequently, Chapter 3 contains information about the data section and methodology. Chapter 4 presents the empirical results of the research. Finally, the study will end with the conclusion and limitations in Chapter 5.

# 2. Literature review and hypothesis development

In this section I explain the theory/literature related to this topic, which will be used to develop my research question and hypotheses. At the end of this section, the research question and different hypotheses will be explained.

## 2.1 Efficient Market Hypothesis

Researchers have been investigating the market impact of stock recommendations provided by financial analysts for decades. Cowles (1933) is the first researcher to provide empirical evidence that investors cannot generate value based on stock recommendations. An important discussion in this topic is whether markets are efficient and stocks are traded at their fair value. Fama's (1970) efficient market hypothesis suggests that stock prices reflect all the available information at any point in time. This implies that when new information arises, the news spreads very quickly and is almost immediately included into stock prices. Fama (1970) defined three different forms of market efficiency: weak, semi-strong, and strong. The weak form suggests that all past information is priced into securities. The semi-strong form is that prices adjust quickly to any new public information that becomes available. Finally, the strong form is that prices reflect all available information, both public and private. Therefore, if the semi-strong and strong form hypothesis holds, no abnormal returns can be achieved by following analysts' recommendations since all the information is already included in the stock price.

The conclusion of Cowles (1933) confirmed the existence of the semi-strong and strong form of the efficient market hypothesis. This conclusion was supported by numerous other studies that followed over the decades including Diefenbach (1972), Logue and Tuttle (1973) and Bidwell (1977). However, a growing body of research has critically examined the semi-strong and strong form of the efficient market hypothesis. Grossman and Stiglitz (1980) find that stock prices cannot fully reflect all the information in the prices because there are costs of acquiring this information. If markets are perfectly efficient there would be no return for all the analysts gathering this information, and there would be little reason to trade and markets would eventually collapse. Hence, Grossman and Stiglitz (1980) conclude that a perfectly efficient market is impossible. Many studies have since then investigated the effect of analysts' stock recommendations on stock prices. Particularly after Fama's (1970) efficient market hypothesis, there was an increasing interest in studying this topic. The findings of these researches will be discussed later.

## 2.2 Valuation methodologies and analyst incentives

Many investors follow analysts’ stock recommendations because they are considered as experts with a better understanding of the companies they follow and the market in general. Those analysts work, for example, for financial institutions, brokerage houses or independently for themselves. Since a lot of firm-specific information is (online) available nowadays, both compulsory and voluntary, analysts spent a lot of time transforming this information into valuable forecasts. The analysts choose a particular valuation model based on the available information and define a target price. Gleason et al. (2013) define this target price as the true value of the stock according to the analyst’s opinion, and is therefore the basis for buy-or sell recommendations.

Several studies document that analysts use both sophisticated valuation models (such as the residual income model and discounted cash flow model) and heuristic valuation models (such as Price-Earnings Growth (PEG) model)) in order to determine the target price. The choice depends on several factors, such as firm characteristics, client preferences, and market prices (e.g. Demirakos et al., 2010; Imam et al., 2013). However, these valuation choices have been critically examined, as it seems that analysts are switching from models in order to achieve higher valuations. For example, Imam et al. (2008) find that analysts switch from sophisticated to heuristic valuation models when the market does well and the share prices are on an upward trend, as this long-term growth is captured by the PEG model. Consequently, several studies show that analysts are overly optimistic, resulting in target prices which are inaccurate and often too high (e.g. Bradshaw et al., 2013; Gleason et al., 2013).

This overvaluation of target prices and optimism of financial analysts can be related to their job incentives and a conflict of interest (Bilinski, 2019). As mentioned before, financial analysts often work for brokerage houses or financial institutions. These organisations receive commissions for every transaction that the clients make. Hence, analysts may be willing to issue more favorable forecasts in order to attract short-term investors, which is the group that generates most of the commissions. Moreover, the analysts themselves are mostly compensated by the brokerage firms in terms of bonuses, which is for example linked to the profitability of the firm or the number of trades (Buxbaum et al., 2019). These findings suggest that investors should be careful when following analysts’ recommendations. Target prices could contain some valuable information, but analysts may be over optimistic in defining a target price and therefore in their buy-or sell recommendation.

### 2.3 Price-pressure hypothesis and information hypothesis

While there is some uncertainty about the value of stock recommendations made by experts, investors still seem to follow them and the effect of it has been widely investigated over the decades. Before discussing these findings, there are two main hypotheses that nearly all studies refer to in their results. These hypotheses try to explain the abnormal returns that occur on the days around the announcement, which is observed return minus the normal return (if the event had not happened). Therefore, these hypotheses will be explained first. The price-pressure hypothesis and information hypothesis are developed by Krauss and Stoll (1972) and Scholes (1972) and arise from the efficient market hypothesis. The price-pressure hypothesis argues that abnormal returns on the event day are the result of naïve buying pressure of investors who believe that it is possible to profit from public available information. But since the recommendation does not contain any new relevant information and the buying pressure is temporary, the price of the stock will reverse back within a short period after the recommendation. On the other hand, the information hypothesis states that the recommendations made by professionals contain new and relevant information, resulting in permanent abnormal returns. In contrast to the price-pressure hypothesis, the change in the stock price will not reverse because it contains valuable information for the long-term.

### 2.4 Attention-driven buying behavior

In addition to the price-pressure hypothesis and information hypothesis, it could be argued that there is a third hypothesis, which is called the attention-grabbing hypothesis of Barber and Odean (2008). When buying a stock, investors can choose from thousands of common stocks. Odean (1999) argues that individual investors limit this search problem by considering stocks that have recently captured their attention, for example via television or internet. Barber and Odean (2008) test for this attention-driven buying behavior by using abnormal trading volume, news, and extreme returns as a proxy for attention. They find that individual investors do indeed exhibit attention-driven buying behavior, while this is not the case for selling stocks. In general, individual investors do not short sell because they have relatively few stocks in their portfolio and they only sell stocks that they already own. Since the investors only start trading because of the created attention, this will generally result in short-term abnormal returns and a price reversal in the weeks after the recommendation, which is also known as the attention-grabbing hypothesis. These findings of Barber and Odean (2008) suggest that attention might be an important driver in stock price changes.

## 2.5 Stock recommendations on television

In the context of this study, the literature related to stock recommendations made on the television is most similar. Over the years, there have been several studies which focus on stock recommendations provided on the television, mainly in the United States. Pari (1987) analyses the impact of stock recommendations made on the television program "Wall Street Week with Louis Rukeyser". He finds that the recommended stock experiences positive abnormal returns on the first trading day after the show. However, these stocks tend to underperform the market for up to a year afterwards. Moreover, Beltz and Jennings (1997) find similar results in the same TV show, and also conclude that only the strongly negative recommendations contain information that is not in the share price at the time of the recommendation, while positive recommendations do not contain any new information.

Busse and Green (2002) study the reaction of stock prices and trading volume when a stock is discussed during the Morning Call or Midday Call segment on the American news channel CNBC. They find that positive news reports about individual stocks discussed during the Midday Call results in increasing stock prices in seconds and lasting approximately one minute, accompanied by rising trading volume. Moreover, they find less evidence of stock price responses for the Morning Call, which suggests that the discussed information is not relevant or already known by the market. These findings support the market efficiency. Although stock prices do not fully reflect all the available information, the market is efficient enough that investors cannot generate abnormal returns based on the discussed news unless they act almost immediately.

The most popular American TV show about stock recommendations is "Mad Money", hosted by Jim Cramer on CNBC. In this show, Cramer gives buy, sell and hold stock recommendations to the viewers. The show is considered as an entertaining television program because of Cramer's personality, but as a former hedge fund manager many individual investors think that he provides valuable information in order to make money. This attracted many researchers to study stock price and volume reactions following the recommendations of Cramer. Neumann and Kenny (2007) document that buy recommendations result in positive abnormal returns and higher trading volumes on both the recommendation day and the day after. However, the average investor is unable to benefit from this effect as they pay the next day's opening price and the effect is only short-term. For the sell recommendations they also found a market response, but this effect is weaker than for the buy recommendations. Lastly, they suggest that investors can create positive abnormal returns for an one month-period by doing the opposite: short the buy recommendation and buy the sell recommendation. However, this seems only reasonable for investors with enough capital. Keasler and McNeil (2010) also find significant market reactions to Cramer's stock recommendations, particularly for small cap stocks (market capitalization lower than 1 billion). However, they find no long-term effect as the announcement returns are almost completely reversed after 25 trading days, suggesting that the price pressure hypothesis holds. Other than the previous studies, Lim and Rosario (2010) document that most of Cramer's buy recommendations performed well over the next six months, especially the small cap stocks. Therefore, they conclude that Cramer has some "stock-picking ability". Engelberg, Sasseville and Williams (2012) expand previous research by focusing on investors attention and limits to arbitrage. But first, they provide similar evidence that there is a strong short-term effect, especially for small companies. Moreover, portfolios which are formed before the recommendations ("Calendar-time portfolios") have no statistically significant long-term alpha, which indicates that the portfolio does not perform better than the market for a 1-year holding period. These results suggest that there is mispricing, which is related to two key factors. First, they find larger abnormal returns when more people are watching the show (viewership). Hereby is viewership a direct measure of attention, confirming the attention-grabbing hypothesis of Barber & Odean (2008). Second, the largest abnormal returns are found among small, illiquid and high idiosyncratic volatility stocks that are hard to arbitrage. Finally, Hartley and Olson (2018) analyze the complete historical performance of Jim Cramer's portfolio from 2001 to 2016, which includes many stock recommendations given in his TV show Mad Money. They find that Cramer's portfolio underperformed the S&P 500 both since the inception of his portfolio in 2001 and the start of Mad Money in 2005. This indicates that investors would have done better if they invested in the market index.

### 2.6 Stock recommendations through other channels

Besides the television, investment advice is increasingly available through other media channels. Since these researches might be useful for my research and in order to provide a complete overview of the literature related to this topic, I will discuss various other information channels including newspapers and magazines, brokerage firms and analysts, and the internet.

### 2.6.1 Newspapers and magazines

The effect of stock recommendations in newspapers and magazines in the United States has been extensively investigated over the decades by various researchers. In the 80's and 90's, analysts gave stock recommendations through the Wall Street Journal in columns as "Heard on the Street" and "Dartboard". Several studies find that the "Heard on the Street" column significantly affects stock prices on the publication day, and that the effect is not reversed in the following 20 trading days (e.g. Davies and Canes, 1978; Liu et al. 1990, Beneish, 1991). Liu et al. (1990) also document higher returns and trading volumes on the two days prior to the publication, which suggests that there is some front-running due to for example information leakage. Beneish (1991) provides empirical evidence that the column contains valuable information, which is confirmed by the long-term analysis of Bauman et al. (1995): the buy (sell) portfolio outperformed (underperformed) the market portfolio by a significant margin for a holding period of six-and twelve months. With regard to the "Dartboard" column, Barber and Loeffler (1993) observe a four percent two-day abnormal return and an average trading volume double than normal following the stock recommendations. However, the price reversed within the subsequent 25 trading days, which is mainly the result of naïve buying pressure (price-pressure hypothesis). These results were later confirmed by Liang (1999) and Greene and Smart (1999): investors following stock recommendations lose, on average, 3.8% on a risk-adjusted basis over a 6-month holding period. More recent research is from Palmon et al. (2009), who investigate the abnormal returns and abnormal trading volumes of stock recommendations made in the three leading business magazines: Business Week, Forbes, and Fortune during the period 2000-2003. In addition, they research whether the timing, content, and style of the columnist affects the market reaction of the recommendation. They conclude that long-term investors are not able to earn abnormal returns, and that there is a higher market impact when there are rumors about the firms' management, possible mergers & acquisitions or when the firm is illiquid and small.

The above mentioned researches are all related to the United States, but there also exists international research. In the context of this study, Wijmenga (1990) evaluates stock recommendations of three Dutch magazines for the period 1978-1983. He concludes that there is a strong and very significant reaction in the week of the publication, especially for strong stock recommendations and stocks with relatively small trading volume, but that there is no long-term effect. Kerl and Walter (2007) analyze buy recommendations for stocks published in the "German Personal Finance Magazines". They find that trading volume increases around

161% at the event day and that there is a 2.58% cumulative abnormal return for a five-day period around the event. For the growth stocks (high price-to-book ratio) they argue that the price-pressure hypothesis holds, while value stocks (low price-to-book ratio) create abnormal returns due to valuable information. Lidén (2007) investigate stock price reactions to buy-and sell recommendations for stocks published in Swedish newspapers and business magazines for the period 1995-2000. The effect of the buy recommendations supports the price pressure hypothesis, as the price was almost fully reversed after 20 days. On the other hand, the effect for the sell recommendations supports the information hypothesis as prices continued to fall. Moreover, they find that the effect of journalists' recommendations is higher than that of analysts. This suggests that analysts provide information to their clients before it is published in the magazines and newspapers, while journalists are not sharing their information.

### 2.6.2 Brokerage firms and financial analysts

Stickel (1995) document that recommendations of brokerage houses have a short-term impact on stock prices. Buy and sell recommendations result in an average abnormal return of 1.16 percent and -1.28 percent, respectively. A stronger effect depends on several factors, such as strength of the recommendation, size of the brokerage house, and the reputation of the analyst. Moreover, Womack (1996) find that buy and sell recommendations of analysts from the fourteen major U.S. brokerage firms have a significant effect on stock prices, both immediately and in the following months. These findings support the view of Grossman and Stiglitz (1980) on market efficiency: there must be returns for gathering the information. However, this approach of Stickel (1995) and Womack (1996) only measures the average price reaction following the recommendation, and these findings can only be used for setting up investment strategies around those recommendations. Therefore, Barber, Lehavy, McNichols and Trueman (2001) expand these researches by focusing on positive abnormal profits for investors after correcting for transaction costs. By following a strategy that consists of buying highly recommended stocks and short selling least favorable stocks, the abnormal gross return (before transaction costs) is 75 basis points per month. However, when they account for transaction costs none of their strategies result in an abnormal net return greater than zero, which emphasizes the importance of accounting for transaction costs. Although these findings suggest that individual investors cannot successfully exploit this market inefficiency, it remains an open question whether alternative recommendation strategies result in positive abnormal net returns.

### 2.6.3 Internet

Over the years, the internet has been increasingly used by investors as a medium for discussing financial related topics, such as attractive investment opportunities. However, the question is whether the information discussed is valuable to investors. Hirschey, Richardson and Scholz (2000) examine the effect of recommendations made on the internet by the "The Motley Fool", which was at that time a very popular US website for investment advice and chats. They conclude that both buy and sell recommendations result in abnormal returns on the announcement day and the two days surrounding the announcement. Moreover, they find that small-cap buy announcements are generating larger abnormal returns. Tumarkin and Whitelaw (2001) research the relationship between internet message board activity and abnormal stock returns and trading volume, and conclude that no causal link exists. In fact, they find that market information influences message board activity, consistent with the market efficiency. These findings were later supported by Das, Martinez-Jerez and Tufano (2005). Dewally (2003) finds that stock recommendations posted on two internet newsgroups does not result in significant abnormal returns over the next 5,10 and 20 trading days.

More recent studies incorporate the evolution of the internet where there is more activity through social networks (e.g. Google and Twitter) and a changing behavioral aspect of users. According to Lampel and Bhalle (2007) is status seeking an important driver for users to participate in online communities. Bollen, Mao and Zeng (2011) find a relation between the mood of users expressed in Twitter and changes in stock prices. Bank, Larch and Peter (2011) examine the relationship between Google search volume and trading activity, liquidity and returns of German stocks. They find that an increase in search volume results in higher trading volume, stock liquidity, and temporarily higher future returns.

Stephan and von Nitzsch (2013) analyze the investment value of individual investors' stock recommendations within online communities. They find that investors are generally not able to earn abnormal returns, but inexperienced investors can take benefits from the online communities. These results are consistent with the findings of above mentioned studies (Tumarkin and Whitelaw 2001; Dewally 2003; Das et al. 2005). Sell recommendations perform better than buy recommendations because of mainly two reasons. First, investors tend to recommend stocks that recently performed well, while this is not a certainty for the future. Second, investors who give sell recommendations are generally more experienced and therefore have an advantage (Stephan & von Nitzsch, 2013).

## 2.7. Hypotheses

The described literature provides mixed results, but generally most studies document that stock recommendations result in short-term abnormal returns and higher trading volumes on the days around the recommendation, and that there is a not a significant long-term effect. This study focuses on the Dutch TV show *Business Class*, in which Harry Mens invites every Sunday different financial analysts to talk approximately 10 minutes about the development of the economy, the Dutch stock exchange and attractive investment opportunities. I will focus on the latter and investigate whether Dutch stock recommendations provided by financial analysts in the TV show *Business Class* cause abnormal returns and trading volumes over different time horizons. In order to answer this research question, I formulated different hypotheses which will be discussed below.

First, most studies conclude that analysts' recommendations result in short-term abnormal returns, short-term trading volumes and a price reversal in the weeks after the recommendation. This is mostly a consequence of the price-pressure hypothesis or the attention grabbing hypothesis, which means that the recommendation does not contain any relevant new information and will cause a price reversal in the following weeks, e.g. Palmon et. al (2009), Bank et al. (2011), and Engelberg et al. (2012). Consequently, this is expected for *Business Class* as well, resulting in the following hypotheses:

**Hypothesis 1:** Buy (sell) recommendations made in the TV show Business Class cause positive (negative) short-term abnormal returns.
**Hypothesis 2:** Recommendations made in the TV show Business Class cause abnormal trading volumes in the short-term.

Barbet et al. (2001) highlighted the importance of incorporating transactions costs into the analysis, concluding that the recommendations do not generate long-term value, which is consistent with many other studies, e.g. Keasler and McNeil (2010), Engelberg et al. (2012), and Hartley and Olson (2018). Therefore, it is expected that the recommendations in *Business Class* will not result in long-term value, resulting in the following hypothesis:

**Hypothesis 3:** Investors cannot profit from analysts' recommendations made in the TV show Business Class in the long-term after correcting for transaction costs.

There are mainly six finance experts who visit the show on a regular basis: Martine Hafkamp, Erik van Nugteren, Etienne Platte, Geert Schaaij, Han Vermeulen, and Edwin Wierda. Except for Geert Schaaij, all the experts are wealth managers. Geert Schaaij, on the other hand, is an independent analyst and provides investment advice through his magazine "Beursgenoten". The analysts need to pay approximately €14.500 for a six minute interview with Harry Mens[2], and mainly have the objective to attract new clients/subscribers to their company/magazine. Although they state whether they hold a position or not in the recommended stock, it could be argued that the analysts have incentives to make certain recommendations so that their clients and themselves can profit from them. Lidén (2007) also suggests that analysts may provide information to their clients before it is published in magazines and newspapers. Consequently, I formulated the following hypotheses:

**Hypothesis 4:** There is front-running in terms of abnormal returns before the recommendations are made in the TV show Business Class.

**Hypothesis 5:** There is front-running in terms of abnormal trading volumes before the recommendations are made in the TV show Business Class.

In addition to determining the effect in the short and long-term, it is also interesting to investigate which factors drive these results. Engelberg et al. (2012) document that the abnormal returns in the TV show Mad Money are strongest when there is a lot of attention, consistent with the attention-grabbing hypothesis of Barber and Odean (2008). While other studies use news events, advertising expenses, trading volumes and so on as a proxy for attention, Engelberg et al. (2012) use TV viewership for a direct link between the number of investors who are watching the show and the impact on stock prices. Other measures of attention could be the time spent on the recommendation and the total number of (Dutch) recommendations because abnormal returns should increase when a stock receives more attention and decrease when investors need to divide the attention between more stocks. Hence, I formulated the following hypothesis:

**Hypothesis 6:** Buy (sell) recommendations made in the TV show Business Class cause larger positive (negative) abnormal returns and larger abnormal trading volume when there is more attention.

[2] https://www.deondernemer.nl/actueel/zo-loopt-harry-mens-binnen-met-business-class-vastgoed-beleggen-en-brutaliteit~279312

The literature provides evidence that specific characteristics of stocks results in different market reactions. For example, different studies document that small capitalized stocks react more and perform better after analysts' recommendations than large capitalized stocks, e.g. Barbet et al. (2001), Barber and Odean (2008), Keasler and McNeil (2010), and Lim and Rosario (2010). Barber et al. (2001) give three reasons for this. First, there is a large amount of information available about large firms, while the information about small firms is relatively scarce. Consequently, it is suggested that analysts provide more additional information when recommending a small company, resulting in higher market reactions. Second, consistent with Shleifer and Vishny (1997) and Pontiff (1996) is it more difficult to arbitrage away the excess returns for small stocks because of high volatility and relative high transaction costs. Lastly, larger firms represent a greater share of available investment opportunities, resulting in smaller influence on excess returns for large firms. Therefore, I expect that stocks listed on the Amsterdam Small cap Index (AScX) have a significantly larger market effect than stocks listed on the Amsterdam Mid cap Index (AMX) and the Amsterdam Exchange Index (AEX). Similarly, the market effect on the AMX will be greater than on the AEX. This results in the following hypothesis:

**Hypothesis 7:** Buy (sell) recommendations made in the TV show Business Class cause larger positive (negative) abnormal returns for firms listed on the AScX relative to firms listed on the AMX and AEX.

In addition to small stocks, the literature also provides evidence that value stocks create larger cumulative abnormal returns than growth stocks (Kerl & Walter, 2007). Value stocks are stocks that belong to the quintile with the smallest price-to-book ratio each year, while growth stocks (also known as "glamour" stocks) belong to the quintile with the highest price-to-book ratio. In general, growth stocks (such as Amazon and Facebook) receive most of the attention by the financial community, while value stocks are less known and less liquid. Consequently, when a rare recommendation is done on a value stock, this might result in a higher market reaction due to the information effect. Therefore, the following hypothesis is formulated:

**Hypothesis 8:** Buy (sell) recommendations provided in the TV show Business Class cause larger positive (negative) abnormal returns for value stocks relative to growth stocks.

Stickel (1995) finds that the reputation of an analyst impacts the market reaction. First, it could be argued that investors are more likely to follow Geert Schaaij's recommendations because he is an independent analyst and has a good reputation (" The Geert Schaaij effect"[3]), while the other analysts are all wealth managers. Second, the role of females and gender diversity has created a lot of attention and political debate over the years. Among the analysts, there are five males and one female (Martine Hafkamp). It might be interesting to investigate whether there is a difference in male and female abnormal returns and trading volumes. However, if there is a difference, it could also be argued that this is the result of her (international) investment strategy. Martine Hafkamp is the only analyst in the show who regularly gives international stock recommendations, while the others analysts mainly give Dutch stock recommendations. Since investors generally prefer to invest in their own country, it is expected that the abnormalities of the stocks which are recommended by Martine Hafkamp are less compared to the other analysts. This results in the following hypotheses:

**Hypothesis 9:** Recommendations made by Geert Schaaij in the TV show Business Class result in significant higher abnormal returns and abnormal trading volumes relative to the other analysts.

**Hypothesis 10:** Recommendations made by Martine Hafkamp in the TV show Business Class result in significant lower abnormal returns and abnormal trading volumes relative to the other analysts.

[3] https://www.iex.nl/Column/255570/Geert-Schaaij-effect

# 3. Research Method

In this chapter, I will first explain the sample selection procedure of the data. Then, the different methodologies which I need to use for testing the different hypotheses will be described.

## 3.1 Sample selection

In order to give an answer to my research question, I collected three types of data:

1. Stock recommendation data;
2. Firm specific data;
3. Market data.

First, I collected the data of the stock recommendations which are given in the TV show *Business Class.* The show is broadcasted every Sunday from 10:30 a.m. to 12:00 a.m. on RTL 7, and episodes of previous months/years were available via the site of *Business Class*. An older dataset is obtained via the MSc Finance coordinator of Tilburg University, which consists of 1146 stock recommendations from August 5, 2004 until April 24, 2016. The recommendations in this dataset are classified into four categories: (1) clearly positive, (2) slightly positive, (3) slightly negative, and (4) clearly negative. This dataset is manually expanded with the help of other students until the period of February 16, 2020. We listened to the conversations between Harry Mens and the financial experts, and used the same structure as the older dataset. Unfortunately, there was a gap in the data as the episodes of *Business Class* from the period May 2016 until September 2017 have been removed from the site. We contacted RTL Netherlands about this, but they charge €65 per episode. Therefore, I decided to include in my sample only the new collected data from September 10, 2017 until February 23, 2020. Since this results in a much smaller dataset, I decided to classify the recommendations only into two groups: buy and sell, which is also consistent with the "Mad Money" studies (e.g. Neumann and Kenny (2007)). In addition to classifying the recommendations into buy and sell, we also included how much time is spent on the recommendation, the total number of recommendations in each show (including international), and the number of viewers. The latter is obtained from RTL Netherlands. Then, I used the Nexis Uni database myself in order to find whether there was any relevant news about the stock in the week before the recommendation because this could impact the market reaction. For example, Edwin Wierda made on March 31, 2019 a buy recommendation on Galapagos, while the day before that recommendation Galapagos shared positive news about a new medicine for people with rheumatoid arthritis[4].

[4] https://www.rtlz.nl/beurs/bedrijven/artikel/4658886/goedkeuring-galapagos-goed-testresultaat-reumamedicijn-filgotinib

Second, I collected the firm-specific data for a number of years using the Thomson Reuters Datastream. This collected data includes daily stock data regarding opening-and closing prices, the number of shares traded, the number of common shares outstanding, the market capitalization, and the market-to-book value of each recommended stock. The Thomson Reuters Datastream is also used for obtaining the annual interest rates of a three month Dutch government bond in order to calculate the daily risk-free rates.

Third, for the market data, I used the Euronext website for the composition of the AEX, AMX, and AScX indices. Since both the Thomson Reuters DataStream and the website of Euronext do not provide the necessary data of all the indices, I contacted Euronext in order to obtain daily data of opening prices- and closing prices of the whole indices itself. For the specific stocks in the indices, I used again the Thomson Reuters Datastream.

Finally, the described three types of data are merged in Stata in order to perform the empirical research. I deleted the stock recommendations where the opening-and closing prices were missing for a certain time-horizon and when an analyst made less than 10 recommendations. This results in a dataset of 195 buy recommendations and 54 sell recommendations, which is considered as a significant sample size for this research. For comparison, Neumann and Kenny (2007) analyzed for the Mad Money show 162 buy and 54 sell recommendations.

### 3.2 Methodology

The methodologies of this study consist of an event study, calendar time-portfolios and a cross sectional regression analysis. The event study methodology will be used for the hypotheses 1, 2, 4 and 5. The calendar-time portfolios will be used for hypothesis 3, and a cross sectional regression analysis for the hypotheses 6 to 10. These methods will be discussed below.

#### 3.2.1 Event Study – abnormal returns

An event study is a methodology to compute the effect of a particular type of event on an asset price, and will be used for testing the hypotheses 1,2, and 4. Calendar time is converted to event time for each stock recommendation with the broadcast date defined as event day [0]. This methodology uses the returns of the market model as a benchmark for normal returns and then detects any deviations from it. This is also known as the abnormal returns, which is denoted as:

$$AR_{i,t} = R_{i,t} - NR_{i,t}$$

Where $AR_{i,t}$ is the abnormal return for stock i at time t, $R_{i,t}$ is the realized return of stock i at time t, and $NR_{i,t}$ is the normal return for stock i at time t. For calculating the realized daily returns, I use the daily opening- and closing prices from the Thomson Reuters DataStream. Then, the returns can be calculated by using formula (1) below. Log returns are used because this improves the normality of the returns distribution (Henderson Jr, 1990):

$$(1) \quad R_{i,t} = LN(P_{i,t}) - LN(P_{i,t-1})$$

Where $R_{i,t}$ is the daily return for firm i on day t, and $P_{i,t}$ is the closing price of stock i on day t. However, the market is closed on the event day (Sunday), which implies that there are no real returns during the weekend. Since I want to measure the impact of the stock recommendations on stock prices during the weekend, I created a 'sixth' trading day return:

$$R_{i,weekend} = LN(P_{i,open\ Monday}) - LN(P_{i,close\ Friday})$$

Where $R_{i,weekend}$ is the weekend return for firm i, $P_{i,open\ Monday}$ is the opening price of stock i on Monday and $P_{i,close\ Friday}$ is the closing price of stock i on Friday. This weekend return is not something that the investor could exploit since the first trading day is on Monday, but it reflects the impact on the stock price. The returns on Monday are calculated as follows:

$$R_{i,Monday} = LN(P_{i,close\ Monday}) - LN(P_{i,open\ Monday})$$

Where $R_{i,Monday}$ is the return for firm i on Monday, $P_{i,close\ Monday}$ is the closing price of stock i on Monday and $P_{i,open\ Monday}$ is the opening price of stock i on Monday. The returns during the rest of the trading days are calculated using formula (1) unless it needs a correction due to holidays. The normal returns are a prediction of the return around the event if the event had not happened, and can be estimated using the market model. The market model is the most widely used model used in Finance and it includes the other three models (mean adjusted, market adjusted, and CAPM) as special cases as long as the risk-free rate does not vary inside the estimation or event window (Crego, 2019). This can be assumed because the risk free rate is not very volatile in developed countries such as the Netherlands. The following regression equation using data from the estimation window is used for the market model:

$$R_{i,t} = \alpha_i + \beta_i \times Rm_t + \varepsilon_{i,t}$$

Where $R_{i,t}$ is the return of stock i at time t, $\beta_i$ is a measure of stock i's sensitivity to market changes, $Rm_t$ is the market return at time t, and $\varepsilon_{i,t}$ is the error term for stock i at time t.

I used an estimation window of 100 days (between -145 and -46), which is consistent with the "Mad Money" study of Karniouchina et al. (2009). This window is wide enough to conduct a reliable estimation and is not affected by the event itself. As a benchmark for the market return I used the corresponding index of the stock (AEX, AMX or AScX). If the firm is not listed in one of these indices, the AScX index is used as the benchmark. Then, I use the OLS estimates to compute the normal returns:

$$NR_{i,t} = \hat{\alpha}_i + \hat{\beta}_i \times Rm_t$$

Where $NR_{i,t}$ is the normal return of stock i at time t, $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the OLS estimates from the estimation period, and $Rm_t$ is the market return at time t. Hence, the abnormal returns for every firm at every time period is calculated with following formula:

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i \times Rm_t$$

Since it is hard to interpret the results for every abnormal return separately, I calculated the Average Abnormal Return (AAR), the Cumulative Abnormal return (CAR), and the Cumulative Average Abnormal Return (CAAR). First, the AAR is calculated as this represents the average additional return generated over all stocks at any specific time t in the event window. The abnormal returns are equally weighted, resulting in the following formula:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$$

Where $AAR_t$ is the average abnormal return at time t, $N$ is the number of recommendations, and $AR_{i,t}$ is the abnormal return for stock i at time t. I calculated the AAR for different event days, and particularly for the event window [-5,5] as this illustrates the week before the recommendation and the week after. From the regression output, I need to construct a T-test to evaluate whether the AAR is statistically significant. The null hypothesis is that the average effect across events is zero: $H_0: E(AAR_t) = 0$. In order to make inference, I assume that the abnormal returns are uncorrelated across events and that number of recommendations (N) is large enough to use the Normal approximation (with mean zero and variance $\sigma^2$). Therefore, the following test statistic is used:

$$TS_1 = \sqrt{N}\,\frac{AAR_t}{se\,(AAR_t)} \sim N(0,1)$$

Where $AAR_t$ is the OLS estimate and $se\,(AAR_t) = \sqrt{\frac{1}{(N-1)}\sum_{i=1}^{N}(AR_{i,t} - AAR_t)^2}$ denotes its standard error.

Second, the CAR is calculated as this represents the accumulated effect up to a period inside in the event window:

$$CAR_i = \sum_{t=t_1}^{t_2} AR_{i,t}$$

Where $CAR_i$ is the cumulative abnormal return for each stock at a specific event window, $t_1$ is the start of the period, $t_2$ is the end of the period, and $AR_{i,t}$ is the abnormal return for stock i at time t. However, for interpretation, I need to evaluate the complete dataset instead of each stock separately. Therefore the CAAR is used, which is the sum of the average abnormal return from starting day until the end day of the event period, and measures the cumulative effect of the event:

$$CAAR = \frac{1}{N}\sum_{i=1}^{N} CAR_i$$

Where CAAR is the cumulative average abnormal return for a specific event window. To test whether there is a short-term effect (hypothesis 1), I calculated the $CAAR$ for different event windows. First, the [0,1] window is used to test the direct effect of the TV show itself. Since the recommendation is made at the time that the market is closed, I am particularly interested in the next-day abnormal return. Second, the [0,5] window is used to test if the cumulative abnormal returns are significant in the week after the show. To test whether there is front-running in terms of abnormal returns (hypothesis 4), I used an event window of [-5,-1] and [-3,-1]. I have chosen for the [-5,-1] event window because this gives insight in the week prior to the show, while the [-3,-1] window is used because Geert Schaaij publishes his magazine "Beursgenoten" on Wednesday. Consequently, the event window [-3,3] will be used to evaluate the CAAR of investors who have information regarding a future recommendation. Finally, the [-10,20] event window is used to analyze the complete pattern of abnormal returns associated with the recommendations, consistent with studies of Neumann and Kenny (2007) and Karniouchina et al. (2009). To test for statistical significance, I make the same assumptions as for the AAR. I consider as null hypothesis that the absence of an effect across the event window is zero: $H_0$: $E(CAAR) = 0$. This results in the following test statistic:

$$TS_2 = \sqrt{N}\ \frac{CAAR}{se\ (CAAR)} \sim N(0,1)$$

Where $CAAR$ is the OLS estimate and $se\ (CAAR)$ = $\sqrt{\frac{1}{(N-1)} \sum_{i=1}^{N} (CAR_i - CAAR)^2}$ denotes its standard error.

### 3.2.2 Event study – abnormal trading volumes

In addition to an event study for abnormal returns, an event study for abnormal trading volumes is conducted. Therefore, this methodology is used for testing hypothesis 2 and hypothesis 5. Almost all studies state that investors start trading because of the created attention, which results in abnormal trading volumes. In order to test the abnormal trading volumes for *Business Class*, I follow the methodology of Campel and Wasley (1996) as other studies did (e.g. Neumann and Kenny (2007)). First, for calculating the actual trading volume for firm i at time t, the percentage of outstanding shares traded on a given day is used. Campel and Wasley (1996) use daily-log-transformed trading volumes as highlighted by Ajinka and Jain (1989) and Cready and Ramanan (1991) because this creates a distribution which is approximately normal. They add a small constant of 0.000255[5] to the formula to prevent taking the log of zero trading volume, resulting in the following formula for calculating the actual trading volume for firm i at time t (in percentages):

$$V_{i,t} = LN\,(\frac{n_{i,t}}{Si,t} * 100 + 0.000255)$$

Where $n_{i,t}$ is the number of shares traded for firm i on day t, and $Si,t$ is the firm's outstanding shares on day t. Similar to the event study for abnormal returns, I use the market model for calculating the normal trading volumes with the corresponding index of the stock as a benchmark and an estimation window of [-145,-46]. The duration of this estimation window is longer than for the abnormal returns because I do not need to create an extra trading day for measuring the trading volume. For each firm in the index the actual trading volumes at time t are calculated, and then equally weighted using the formula of Campel and Wasley (1996):

$$V_{m,t} = \frac{1}{N}\sum_{i=1}^{N} Vi,t$$

Where $V_{m,t}$ is the market trading volume of the index on day t, and N is the number of stocks in that particular index. Then, I expanded the market model by day dummies as several studies document that trading volumes significantly differ among the days of the week (e.g. Jain and Joh, 1988; Sias and Starks, 1995, Ülkü and Rogers, 2018). Consequently, the following formulas are used to calculate the normal trading volumes and abnormal trading volumes:

$$NV_{i,t} = \alpha_i + \beta_i V_{m,t} + \delta_1 D_{Tuesday} + \delta_2 D_{Wednesday} + \delta_3 D_{Thursday} + \delta_4 D_{Friday} + \varepsilon_{i,t}$$

$$AV_{i,t} = V_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i V_{m,t} + \widehat{\delta_1} D_{Tuesday} + \widehat{\delta_2}\, D_{Wednesday} + \widehat{\delta_3} D_{Thursday} + \widehat{\delta_4}\, D_{Friday})$$

[5] Changing this constant does affect the results.

Where $NV_{i,t}$ is the normal stock trading volume for stock i on day t, $\alpha_i$ is the intercept, $\beta_i$ is the market coefficient, $\delta$ is the coefficient for a specific day (Monday is the base day), $D_{day}$ is the day dummy for a specific day, $\varepsilon_{i,t}$ is the error term, $AV_{i,t}$ is the abnormal trading volume for every stock at time t, and $\hat{\alpha}_i$ , $\hat{\beta}_i$, and $\widehat{\delta_x}$ are the OLS estimates.

Similar to the event study for abnormal returns, I calculated the Average Abnormal Volumes (AAV), the Cumulative Abnormal Volumes (CAV), the Cumulative Average Abnormal Volumes (CAAV) and their significance for interpreting the results. These methods will be briefly explained since the formulas and interpretations are basically the same (volumes instead of returns). First, I calculated the AAV for the event window [-4,4] as this illustrates the week before the recommendation and the week after. The abnormal volumes are equally weighted, and the event day is the Monday after the recommendation. This differs from the event day of abnormal returns since Monday is the first day that investors can start trading and where abnormal trading volumes can be measured. The significance is tested by assuming that the abnormal volumes are uncorrelated across events and that number of recommendations (N) is large enough to use the Normal approximation (with mean zero and variance $\sigma^2$). Therefore, the following formulas are used for calculating the AAV at time t and the significance of it:

$$AAV_t = \frac{1}{N}\sum_{i=1}^{N} AV_{i,t} \qquad TS_3 = \sqrt{N}\ \frac{AAV_t}{se\ (AAV_t)} \sim N(0,1)$$

Where $AAV_t$ is the OLS estimate and $se\ (AAV_t) = \sqrt{\frac{1}{(N-1)} \sum_{i=1}^{N} (AV_{i,t} - AAV_t)^2}$ denotes its standard error. Subsequently, the CAV and CAAV are calculated for the cumulative effect:

$$CAV_i = \sum_{t=t_1}^{t_2} AV_{i,t} \qquad CAAV = \frac{1}{N}\sum_{i=1}^{N} CAV_i$$

To test whether there is a short-term effect (hypothesis 2), I used an event window of [0,4] and [0,9] to evaluate the first and second week. Similar to the event study for abnormal returns, events windows of [-5,-1] and [-3,-1] will be used for testing whether there is front-running in terms of abnormal trading volumes (hypothesis 5). Finally, the event windows [-3,3] and [-10,20] are used in order to analyze the complete pattern of abnormal volumes associated with the recommendations. To test for statistical significance, I make the same assumptions as for the AAV, which results in the following test statistic:

$$TS_4 = \sqrt{N}\ \frac{CAAV}{se\ (CAAV)} \sim N(0,1)$$

Where CAAV is the OLS estimate and $se\ (CAAV)$ = $\sqrt{\frac{1}{(N-1)} \sum_{i=1}^{N} (CAV_i - CAAV)^2}$ denotes its standard error.

### 3.2.3 Calendar-time portfolios

The next step is to test whether the recommendations contain value-relevant information and if investors can profit from this in the long-term (hypothesis 3). This can be done by forming calendar-time portfolios, which is also known as the Jensen's-alpha approach from Jensen (1968). This approach has been used by several other studies including Keasler and McNeil (2010), Engelberg et al. (2012) and Hartley and Olson (2018), and accounts for cross-sectional correlation in the abnormal returns by using calendar times (Kothari & Warner, 2007). First, I have created daily calendar-time portfolios for both the buy and sell recommendations. The formed portfolios have a holding period of 60, 120, 180, 240, and 300 trading days, which is consistent with the number of weeks used by Engelberg et al. (2012)[6]. However, as mentioned before, it should be noted that (individual) investors rarely go short because of short sale constraints and transaction costs. The stocks are bought at the opening price on Monday, since the stock market is closed on Sunday and Monday is the first trading day. The returns are corrected for transaction costs as indicated by Barber et al. (2001). For this, I used the average transaction costs charged by the three largest banks in the Netherlands (ING, Rabobank, and ABN AMRO) on the basis of an order of €1000, which is approximately 0.81%[7].

The portfolio returns are computed as the equally weighted average of daily returns of the stocks in the portfolio. The number of firms included in the portfolio is not constant through time as some firms are added each week and some firms exit each week (depending on the holding period). Therefore, the portfolios are rebalanced each week and a value weighted portfolio excess return is calculated by subtracting the risk-free rate of the portfolio returns. Subsequently, the constructed portfolio's excess return can be regressed on excess market returns, and the intercept (Jensen's-alpha) of the regression is used as the estimate of abnormal returns. If the intercept is positive and significant, it can be concluded that the portfolio outperformed its comparison (the market). For robustness, I regressed the excess returns on different models including the Capital Asset Pricing Model (CAPM), the three-factor model of Fama and French (1993), and the four-factor model of Carhart (1997). These models will be discussed below.

[6] The number of days differ with Engelberg et al. (2012) because I have created a sixth trading day
[7] https://www.geldreview.nl/beleggen/aandelen-kopen/

Although the CAPM has been rejected in many studies (e.g. Fama and French (1992)), the model is still widely used because it is simple and allows for easy comparisons of investment alternatives. The model attempts to explain the relationship between the expected return of the stock and systematic risk. The following equation is used for regression the excess returns on the market excess returns:

$$(R_p - R_f)_t = \alpha_p + \beta_p (R_m - R_f)_t + \varepsilon_{p,t}$$

Where $R_p$ is the portfolio return on day t, $R_f$ is the risk-free rate for day t, $\alpha_p$ is the intercept of the regression, $\beta_p$ is a measure of the sensitivity of the portfolio to market changes, $R_m$ is the market return, and $\varepsilon_{p,t}$ is the error term. For the risk-free rate, I divided the annual interest rate from a three month Dutch government bond by the 312 trading days. As a benchmark for the market return I used the AEX index. Since the CAPM does not explain differences in returns across different stocks, the model is criticized and expanded by different factors.

Fama and French (1993) expanded the CAPM model by adding size risk (SMB) and value risk (HML) to the model, which is also known as the three-factor model. These risk factors are added because Fama and French (1993) found that small capitalization stocks and value stocks tend to outperform the market on a regular basis. Therefore, SMB (small minus big) measures the historical excess returns of small-cap companies over big-cap companies, while HML (high minus low) measures the historical excess returns of high book-to-market companies over low book-to-market companies. For adding these factors, I used the daily Fama/French European risk factors which are available on Kenneth French's data website[8].
This results in the following regression using the three-factor model of Fama and French:

$$(R_p - R_f)_t = \alpha_p + \beta_p (R_m - R_f)_t + s_p SMB_t + h_p HML_t + \varepsilon_{p,t}$$

Where $s_p$ is the size beta, $SMB_t$ is the difference between a value-weighted portfolio of small stocks and one of large stocks on day t, $h_p$ is the book-to-market beta, and $HML_t$ is the difference between a value-weighted portfolio of high book-to-market stocks and one of low book-to-market stocks.

[8] https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Carhart (1997) expanded the three-factor model with a momentum (MOM) factor to create the four-factor model. This momentum factor is based on research from Jegadeesh and Titman (1993) and states that stocks which have performed well in the past would continue to perform well, while stocks which have performed poorly in the past would continue to perform badly. Although this model is in general not as popular as the three-factor model of Fama and French (1993), the four-factor model is commonly used in recent studies to test for abnormal returns in the long-term (e.g. Keasler and McNeil (2010), and Engelberg et al. (2012)). Similar to the SMB and HML risk factors is Kenneth French's data website used for obtaining the daily European MOM factor. This results in the following regression equation:

$$(R_p - R_f)_t = \alpha_p + \beta_p (R_m - R_f)_t + s_p SMB_t + h_p HML_t + M_p MOM_t + \varepsilon_{p,t}$$

Where $M_p$ is the momentum beta and $MOM_t$ is the difference between the returns on the portfolios of past "winners" and "losers".

### 3.2.4 Cross-sectional regression analysis

A cross sectional regression analysis is performed to investigate whether there are specific variables that drive the size of the abnormalities on the event day and days/periods around the recommendation. The following four regression equations are used for this:

$$(1)\ AR_{i,t} = \alpha + \beta_j X_{i,j} + \varepsilon_t$$

$$(2)\ AV_{i,t} = \alpha + \beta_j X_{i,j} + \varepsilon_t$$

$$(3)\ CAR_i = \alpha + \beta_j X_{i,j} + \varepsilon_t$$

$$(4)\ CAV_i = \alpha + \beta_j X_{i,j} + \varepsilon_t$$

I used the regressions (1) and (2) to illustrate which factors drive the abnormal returns and trading volumes on the event day itself, while the regressions (3) and (4) are used to explain the abnormalities in specific event windows (such as the first week effect) as described in the previous sections. Different independent and control variables are used for testing the hypotheses 6 to 10, which are summarized in Table 1 and discussed below.

First, for hypothesis 6 which tests whether investors exhibit attention-driven buying behavior, I followed the methodology of Engelberg et al. (2012) and used the following independent variables as a direct measure of attention: viewership, time spent on the recommendation (duration), the number of Dutch recommendations each show, and the total number of recommendations each show. Then, index dummies are used for testing hypothesis 7 which states that there are higher abnormal returns for stocks listed on the AScX index relative to firms listed on the AEX and AMX index. In addition, the market capitalization variable of each firm prior to the recommendation is included instead of these index dummies to further explain the effect of small capitalized stocks relative to large capitalized stocks. For testing whether there are higher abnormal returns for value stocks relative to growth stocks (hypothesis 8), the price-to-book ratio of each firm prior to the recommendation is used. Finally, dummies of each analyst are used for testing whether there are differences in terms of abnormalities among the analysts, consistent with hypothesis 9 and 10.

Statistical significance of the coefficients is determined using clustered standard errors, which is also consistent with several Mad Money studies (e.g. Engelberg et al. (2012)). In *Business Class*, several stock recommendations are given each show. If my model for normal returns does not perfectly capture the correlation across these firms, the abnormal returns will be correlated. Hence, I cluster standard errors by broadcast date as suggested by Crego (2019). The estimates are exactly the same because I am using the same estimators, but the standard errors are mildly lower.

**Table 1: Independent and control variables**

| Variable | Hypothesis | Description |
|---|---|---|
| Viewership | H6 | The number of households (in thousands) viewing the TV show (including re-runs before Monday open). |
| Duration | H6 | The time spent (in seconds) on the recommendation. |
| Total recommendations | H6 | The total number of recommendations provided during the TV show. |
| Dutch recommendations | H6 | The total number of Dutch recommendations provided during the TV show. |
| AEX Dummy | H7 | A dummy variable which takes the value of 1 if the recommended stock is listed on the AEX, and 0 otherwise. |
| AMX Dummy | H7 | A dummy variable which takes the value of 1 if the recommended stock is listed on the AMX, and 0 otherwise. |
| AScX Dummy | H7 | A dummy variable which takes the value of 1 if the recommended stock is listed on the AScX, and 0 otherwise. |
| Size | H7 | The natural logarithm of market capitalization (in thousands) on the last day prior to the recommendation. |
| PTBV | H8 | The Price-to-Book value of the company on the last day prior to the recommendation. |
| M. Hafkamp Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Martine Hafkamp, and 0 otherwise. |
| E. Nugteren Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Erik van Nugteren, and 0 otherwise. |
| E. Platte Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Ettienne Platte, and 0 otherwise. |
| G. Schaaij Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Geert Schaaij, and 0 otherwise. |
| H. Vermeulen Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Han Vermeulen, and 0 otherwise. |
| E. Wierda Dummy | H9 and H10 | A dummy variable which takes the value of 1 if the stock is recommended by Edwin Wierda, and 0 otherwise. |
| Reprise | Control | The amount of weeks since the previous recommendation on the same company. |
| News Dummy | Control | A dummy variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. |

*Notes*. This table exhibits an overview of the independent and control variables used for answering the different hypotheses.

# 4. Results

This chapter presents an overview of the descriptive statistics and the empirical results of the event study for abnormal returns and abnormal trading volumes, calendar-time portfolios and the cross-sectional regression analysis.

## 4.1 Descriptive statistics

Table 2 exhibits the descriptive statistics of the numeric variables which are used in this research. In short, this dataset consists of 195 buy recommendations and 54 sell recommendations, which consists of 131 recommendations from the AEX, 80 from the AMX and 38 from the AScX. Of those recommendations 68 are made by Edwin Wierda, 37 by Geert Schaaij, 58 by Han Vermeulen, 20 by Martine Hafkamp, 56 by Etienne Platte and 10 by Erik Nugteren. The viewership for the show is on average 116,269 with a maximum of 193,000 and a minimum of 28,000. The time spent on the recommendation (duration) is on average approximately 73.5 seconds, which fluctuates from 1 second to 312 seconds. On average, 4.5 Dutch recommendations are made each show, while the average total number of recommendations each show is 5.8. Reprise is the amount of weeks since the previous recommendation on the same company and is on average 11.2 weeks. Finally, the average log size (market capitalization) is 8.7 and the price-to-book-value is on average 2.7.

**Table 2: Summary statistics**

| | N | Mean | St.Dev | Median | min | max |
|---|---|---|---|---|---|---|
| Viewership | 249 | 116.269 | 35.118 | 118 | 28 | 193 |
| Duration | 249 | 73.522 | 51.399 | 66 | 1 | 312 |
| Dutch Recommendations | 249 | 4.502 | 2.332 | 4 | 1 | 11 |
| Total recommendations | 249 | 5.791 | 2.686 | 5 | 1 | 13 |
| Reprise | 249 | 11.197 | 15.795 | 5 | 0 | 112 |
| Size | 249 | 8.703 | 1.909 | 8.523 | 3.828 | 12.35 |
| PTBV | 249 | 2.656 | 5.109 | 1.55 | -46.56 | 33.52 |

*Notes.* This table exhibits the descriptive statistics. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch* recommendations is the total number of Dutch recommendations given during the TV show. *Total recommendations* is the total number of recommendations given during the TV show. *Reprise* is the amount of weeks since the previous recommendation on the same company. *Size* is the natural logarithm of market capitalization (in thousands) on the last day prior to the recommendation. *PTBV* is the price-to-book-value on Friday prior to the recommendation.

## 4.2 Event study abnormal returns

Table 3 reports the average abnormal returns of the *Business Class* buy and sell recommendations from event day -5 to event day +5 to illustrate any abnormal movements in the stocks one week preceding the recommendation and one week following their mention on the show.

**Table 3: Average abnormal returns**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -5 | -0.12% | -1.07 | 0.02 | 0.18% | 0.77 | 0.02 |
| -4 | 0.22%** | 2.24 | 0.01 | -0.86% | -1.53 | 0.04 |
| -3 | 0.12% | 0.99 | 0.02 | -0.85% | -1.59 | 0.04 |
| -2 | 0.33%** | 2.16 | 0.02 | -0.32% | -0.95 | 0.02 |
| -1 | 0.03% | 0.29 | 0.02 | -0.34% | -1.55 | 0.02 |
| 0 | 0.35%*** | 6.31 | 0.01 | -0.05% | -0.30 | 0.01 |
| 1 | 0.20%* | 1.80 | 0.02 | -0.30% | -1.35 | 0.02 |
| 2 | 0.10% | 0.77 | 0.02 | 0.55%* | 1.95 | 0.02 |
| 3 | 0.26%** | 1.97 | 0.02 | 0.18% | 0.84 | 0.02 |
| 4 | 0.14% | 1.32 | 0.01 | 0.74%* | 1.81 | 0.03 |
| 5 | -0.08% | -0.97 | 0.01 | 0.13% | 0.69 | 0.01 |
| N | 195 | | | 54 | | |

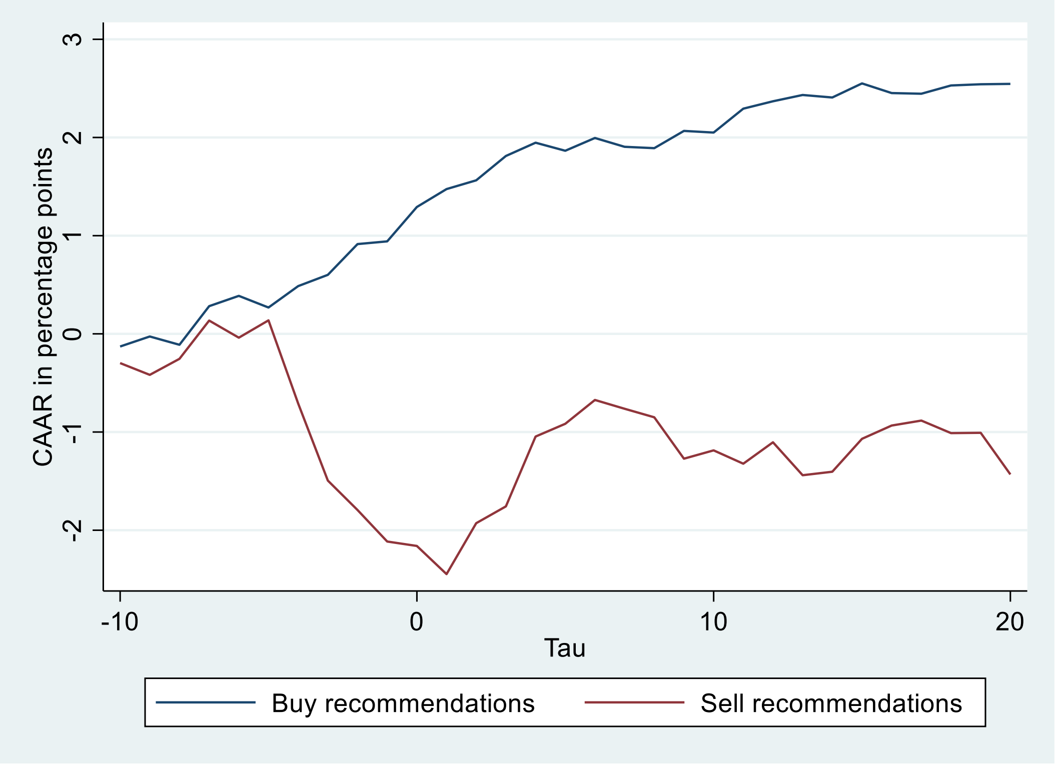
*Notes.* This table exhibits the average abnormal returns, the T-statistics and the standard errors for different event days for both the buy and sell recommendations. For calculating the abnormal returns, the market model is used as a benchmark with an estimation window of 100 days [-145,-46]. In order to measure the weekend returns, a sixth-trading day is created. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

Consistent with previous research (e.g. Neumann and Kenny, 2007; Engelberg et al., 2012), I find strong evidence that the recommended buy stocks experience positive average abnormal returns for different event days. On the event day itself, the average abnormal weekend return is 0.35% relative to the market model, which is statistically significant at the 1% level. In comparison, Neuman and Kenny (2007) find a statistically significant average abnormal return of 0.59% on the event day. This suggests that investors respond immediately after the provided stock recommendation by placing buy orders in the system, causing prices to move. In addition, I find positive and statistically significant (at the 5% level) average abnormal returns for event days prior to the show, suggesting that there is front-running. There are still some statistically significant abnormal returns after the show, but this effect diminishes after event day 3.

For the sell recommendations, less strong evidence of a market reaction is found, as shown in Table 3. Event day 0 average abnormal returns are negative but not statistically different from zero, while event days 2 and 4 have statistical significant (at the 10% level) positive abnormal returns. In addition, most of the expected negative abnormal returns are prior to the show, but these are not statistically significantly different from zero. These results suggest that investors are not reacting to the sell recommendations on Sunday and that other factors are driving the negative abnormal returns prior to the show, which will be discussed later in this section.

In order to analyze the average accumulated effect up to a period inside the event window, the cumulative average abnormal returns (CAARs) for the event window [-10,20] is plotted in Figure 1. The plot clearly shows the positive (negative) reactions on event day 0 as well as an upward (downward) movement that begins in the week prior to the show for the buy (sell) recommendations. In contrast to the findings of Neumann and Kenny (2007) and Karniouchina et al. (2009), I find no (graphical) evidence that there is a downward trend in CAARs for the buy recommendations after the event day. In fact, I find for both the buy and sell recommendations an increasing trend after the event date in CAARs until the relatively stable state around Tau = 12. Table 4 is created to further interpret the plot in Figure 1 and to answer my hypotheses whether there is a short-term effect (hypothesis 1) and front-running (hypothesis 4) in terms of abnormal returns. This table presents the CAARs and their corresponding T-statistics and standard errors for different event windows.

**Figure 1: Cumulative average abnormal returns**




*Notes.* This figure represents the cumulative average abnormal returns for both the buy and sell recommendations relative to the market model with an estimation window of 100 days [-145,-46]. The cumulative average abnormal returns are shown for the event window [-10,20], which is consistent with Neumann and Kenny (2007) and Karniouchina et al. (2009). The event day is the Sunday when the recommendation is made (Tau=0).

**Table 4: Cumulative average abnormal returns**

| Event window | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| [0,1] | 0.53%*** | 4.26 | 0.02 | -0.33% | -1.23 | 0.02 |
| [0,5] | 0.92%*** | 3.72 | 0.03 | 1.20%* | 1.87 | 0.05 |
| [-3,-1] | 0.46%** | 1.97 | 0.03 | -1.41%** | -1.99 | 0.05 |
| [-5,-1] | 0.55%** | 2.04 | 0.04 | -2.08%** | -2.29 | 0.07 |
| [-3,3] | 1.33%*** | 3.96 | 0.05 | -1.05% | -1.31 | 0.06 |
| [-10,20] | 2.55%*** | 3.84 | 0.09 | -1.43% | -0.73 | 0.14 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the cumulative average abnormal returns, the T-statistics and the standard errors for different event windows for both the buy and sell recommendations. The market model is used as a benchmark with an estimation window of 100 days [-145,-46]. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

First, the event windows [0,1] and [0,5] suggest that there is a direct effect on stock prices in the first day(s) following the buy recommendations given the CAARs of 0.53% and 0.92% at the 1% significance level. For the sell recommendations, no negative significant expected effect is found, but rather a positive significant (at the 10% level) effect in the first week following the recommendations. Then, for both the buy and sell recommendations statistical evidence (at the 5% level) is found for front-running in terms of abnormal returns. This could be caused by, for example, information leakage regarding a future recommendation (e.g. "Beursgenoten" magazine) or by contaminating events taking place within the event window. An example of the latter is that analysts could base their recommendations for certain stocks on the current news. This implies that the reaction on that news – and not the recommendation that follows it – might cause the abnormal returns around the event. As an illustration, Han Vermeulen made on September 23, 2018 a sell recommendation on TomTom, while four days earlier there was an announcement that Google will partner with Renault, Nissan and Mitsubishi to put Android-based infotainment systems into millions of cars. This resulted in a negative abnormal return of 27% for TomTom on event day -4. This could also explain why there is an upward trend in CAARs for sell recommendations after the event (as shown in Figure 1) as prices might reverse back when there is an overreaction on the news. To test whether these news events are driving the results, I searched in the Nexis Uni database for any relevant news in the week prior to the event and included this news dummy in the cross sectional regression analysis. If the news dummy is statistically significant, a robustness check will be performed on the (cumulative) abnormal returns and its significance. For now, it will be assumed that these news events do not have a significant effect on the (cumulative) abnormal returns. Consequently, investors who have information regarding a future buy recommendation will earn, on average, for the period [-3,3] a significant CAR of 1.33%.

In conclusion, this section provides strong empirical evidence that buy recommendations cause positive short-term abnormal returns given the results of Table 3 and Table 4. For sell recommendations, on the other hand, not enough statistical evidence is found that supports the negative reaction to those recommendations. Consequently, Hypothesis 1 which states that buy (sell) recommendations made in *Business Class* cause positive (negative) short-term abnormal returns can only be confirmed for the buy recommendations. In addition, I find evidence that there is for both the buy and sell recommendations front-running in terms of abnormal returns before the recommendations are made, which supports hypothesis 4. For robustness, I also calculated the average abnormal returns using the four-factor model (consistent with Karniouchina et al., 2009) and when the abnormal returns are winsorized to eliminate the outliers, which both can be found in the appendix. Using the four-factor model did not alter the results (Table 15), while winsorizing the data results for the sell recommendations in lower and insignificant abnormal returns (Table 16). Moreover, winsorizing the data causes the CAARs for periods prior to the show to be insignificant for the buy recommendations (Table 17). These outliers, however, could be the result of news events prior to the show (such as with TomTom) and will be further analyzed in the cross sectional regression analysis.

### 4.3 Event study abnormal trading volumes

To analyze if *Business Class* recommendations also have a significant impact on the trading volume around the recommendations, I followed the methodology of Campel and Wasley (1996) by calculating log-transformed abnormal trading volumes. Table 5 presents the results of the average abnormal trading volumes for different event days. Different from the methodology of abnormal returns is event day 0 on Monday, as this is the first day for investors to start trading and where abnormal trading volumes can be measured.

**Table 5: Average abnormal trading volumes**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -4 | 18.11%*** | 2.94 | 0.86 | 17.34%* | 1.95 | 0.65 |
| -3 | 20.15%*** | 4.87 | 0.58 | 42.68%** | 3.89 | 0.81 |
| -2 | 22.9%*** | 5.40 | 0.59 | 24.53%*** | 2.92 | 0.62 |
| -1 | 24.72%*** | 5.11 | 0.68 | 17.27%* | 1.61 | 0.79 |
| 0 | 30.12%*** | 6.71 | 0.63 | 30.52%*** | 3.23 | 0.69 |
| 1 | 24.95%*** | 4.52 | 0.77 | 31.58%* | 1.66 | 1.39 |
| 2 | 19.36%*** | 4.90 | 0.55 | 2.38% | 0.37 | 0.47 |
| 3 | 15.33%*** | 3.62 | 0.59 | 6.58% | 0.85 | 0.57 |
| 4 | 12.96%*** | 2.86 | 0.63 | 13.11% | 1.37 | 0.70 |
| | | | | | | |
| N | 195 | | | 54 | | |

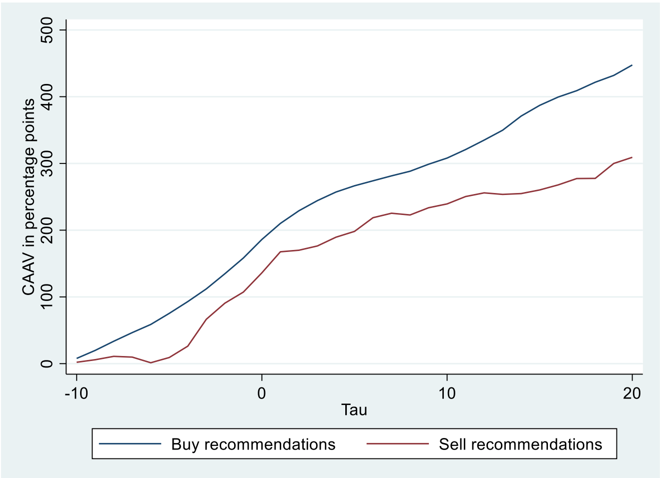
*Notes.* This table exhibits the average abnormal volumes, the T-statistics and the standard errors for different event days for both the buy and sell recommendations. For calculating the abnormal volumes, the market model including day dummies is used as a benchmark with an estimation window of 100 days [-145,-46]. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Each actual trading volume of buy recommendations differs statistically (at the 1% level) from its benchmark within the period [-4,4]. On the event day itself, the average abnormal trading volume peaks at around 30.12% of the normal trading level, which is followed by an 24.95% abnormal trading volume on the day following the show. Again I find empirical evidence of front-running given the positive statistically significant abnormal trading volumes prior to the recommendation. In comparison, Karniouchina et al. (2009) find for every day in the event window [-10,20] positive and significant average abnormal trading volumes for buy recommendations. Given the daily decline in abnormal trading volume after the event day, these results suggest that abnormal volumes are induced by the analysts' recommendations.

As with abnormal returns, the volume effect with regard to sell recommendations is different compared to the buy recommendations. I find statistical evidence of abnormal trading volumes on the event day and several days before and one day after. However, the average abnormal trading volume peaks for the sell recommendations at 42.68% for event day -3. As mentioned before, contaminating news events could be the reason for this, which suggests that analysts base their sell recommendations (partially) on current news.

Similar to the abnormal returns, I plotted the cumulative abnormal volumes for the event window [-10,20] (Figure 2) and created Table 6 to analyze the accumulated effect of different event windows to answer my hypotheses whether there is a short-term effect (hypothesis 2) and front-running (hypothesis 5) in terms of abnormal volumes. Figure 2 clearly shows that there is already abnormal trading activity of the recommended stocks before the show, but that the recommendations further stimulates this.

**Figure 2 : Cumulative average abnormal volumes**




*Notes.* This figure represents the cumulative average abnormal volumes for both the buy and sell recommendations relative to the market model with an estimation window of 100 days [-145,-46]. The cumulative average abnormal volumes are shown for the event window [-10,20], which is consistent with Neumann and Kenny (2007) and Karniouchina et al. (2009). The event day is the Monday after the recommendation is made (Tau=0).

**Table 6: Cumulative average abnormal volumes**

| Event window | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| [0,4] | 98.90%*** | 5.24 | 2.64 | 82.25%** | 2.03 | 2.98 |
| [0,9] | 140.52%*** | 4.02 | 4.88 | 126.34%* | 1.65 | 5.64 |
| [-3,-1] | 65.26%*** | 5.76 | 1.58 | 81.01%*** | 3.16 | 1.88 |
| [-5,-1] | 99.54%*** | 5.10 | 2.73 | 105.86%*** | 3.00 | 2.59 |
| [-3,3] | 151.33%*** | 6.15 | 3.15 | 150.16%*** | 3.17 | 3.49 |
| [-10,20] | 447.49%*** | 4.55 | 13.74 | 309.18%** | 1.99 | 11.42 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the cumulative average abnormal volumes, the T-statistics and the standard errors for different event windows for both the buy and sell recommendations. The market model including day dummies is used as a benchmark with an estimation window of 100 days [-145,-46]. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

The event windows [0,4] and [0,9] show that there is a significant effect of the TV show on trading volumes in the first and second week as the cumulative average abnormal trading volumes for both the buy and sell recommendations are positive and statistically significant. Buy recommendations experience in these event windows cumulative average abnormal trading volumes of 98.90% and 140.52%, while this is for sell recommendations 82.25% and 126.34%. The cumulative average abnormal volume a week prior to the recommendation is for the buy recommendations already 99.54% and 105.86% for the sell recommendations, which is just as large as the effect of the first week. For example, analysts could base their recommendations on stocks which were already traded a lot in the last weeks ("hot" stocks) or on the current news. Overall, buy recommendations experience an average abnormal trading volume of 447.49% in the period [-10,20] and sell recommendations 309.18%.

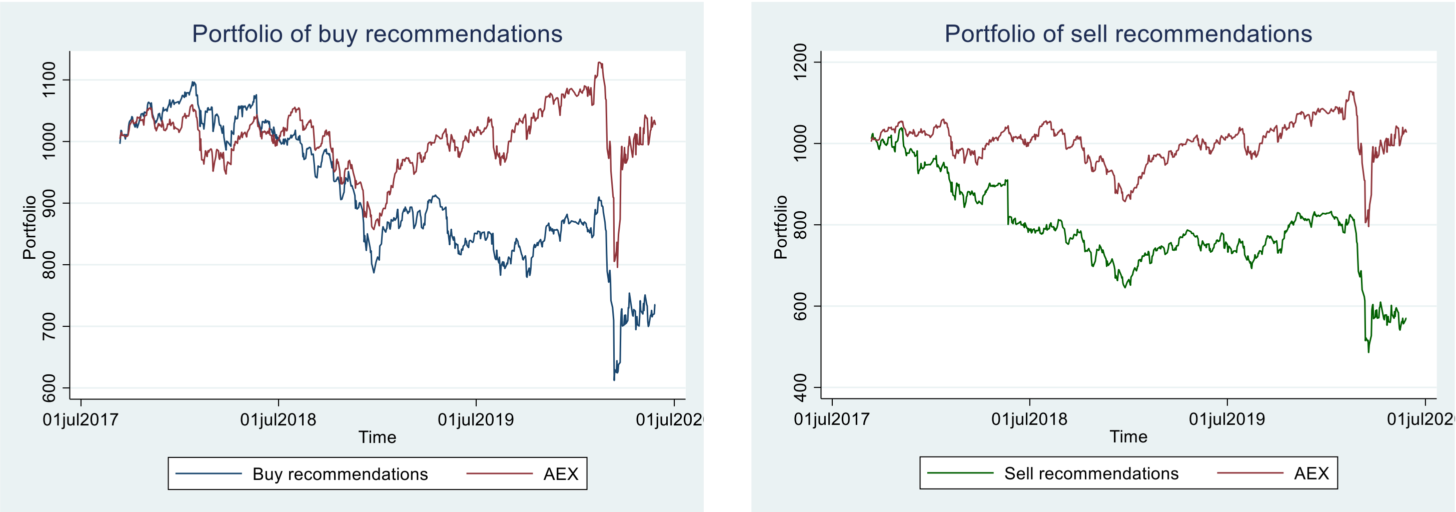
In summary, this section provides empirical evidence that there is abnormal trading volume on the event day and the days around the show for both buy and sell recommendations. These findings support Hypothesis 2 and Hypothesis 5, claiming that *Business Class* recommendations cause abnormal trading volumes in the short-term and that there is front-running. As it was with abnormal returns, a robustness check should be performed if the news dummy is significant to test whether contaminating events are driving the (front-running) numbers. Tables 18 and 19 in the appendix provide the results when the data is winsorized, which does not alter the significance and interpretation of the results.

### 4.4 Calendar-time portfolios

In the previous sections I showed that there is (at least) a short-term effect in terms of abnormal returns and abnormal trading volumes. To determine whether analysts provide value relevant information and if investors can profit from this in the long term, I created calendar-time portfolios with different holding periods for both the buy and sell recommendations separately. These portfolios are composed of equally weighted stock returns of recommended stocks, and as a benchmark for the market returns I used the AEX index. A recommended stock enters the portfolio 1 day after the show airs since this is the first trading day. By regressing the constructed excess portfolio's return on the excess market returns, the intercept of the regression is used as an estimate of the abnormal returns.

First, the performance of both the buy and sell portfolios is shown graphically in Figure 3 by holding the recommended stocks for 300 trading days. This figure is based on a starting capital of 1000 euros and excludes transaction costs. The figure shows that the portfolio's already underperforms relative to the market. As an illustration, the portfolio of buy recommendation would be worth €735.10 at the end of May 2020, while the investor would have a portfolio worth €1026.86 if he had invested in the market. Both portfolios show a huge decline in value due to the Coronavirus, but even before the outbreak the buy portfolio already underperformed relative to the market and is worth less than the initial investment. On the other hand, the portfolio of recommended sell stocks would be worth €569.95 at the end of May 2020, which is significantly lower than the initial investment. This implies that the analysts provide some value-relevant information for the sell recommendation, even if the recommendations are (partially) based on the current news.

**Figure 3: Calendar-time portfolios performance**




*Notes.* This figure represents the performance of calendar time portfolios for both the buy and sell recommendations if the investors starts with an investment of 1000 euros. The portfolios are composed of equally weighted stock returns of recommended stocks one day after the recommendation, and the AEX index is used as a benchmark.
The stocks are bought at the opening price of Monday and have a holding period of 300 days. The returns are not corrected for transaction costs and short-selling costs. The portfolios are created from September 11, 2017 until May 27, 2020. The left graph shows the portfolio of buy recommendations, and the right graph shows the performance of the portfolio of sell recommendations.

Table 7 considers daily calendar-time portfolios that hold the analysts buy recommendations for 60, 120, 180, 240, and 300 days through September 11, 2017. I regressed the excess returns before transaction costs from these equally-weighted portfolios on the market excess return in Panel A and the standard three and four factors in Panel B and C, respectively. If the recommendations contained value-relevant information not already included in stock prices, I would expect positive abnormal returns from those portfolios. I find no statistical positive alpha and, in fact, find negative statistically detectable alpha's for the CAPM model in holding periods of 180 and 240 days. This indicates that the buy recommendations underperform relative to the market even before correcting for transaction costs. The excess market returns beta's are in all the holding periods around 1, which means that these portfolios are on average about as volatile as the market. The *SMB* and *HML* coefficients are in both panels positive and statistically significant for different holding periods. This indicates that the excess returns of the portfolios have a positive exposure to high book-to-market values and small firms. The coefficient on *MOM* is negative and statistically significant for all holding periods in Panel C, which implies that the firms in the portfolio performed poorly in the past.

Table 8 presents the regression results of calendar-time portfolios that consist of the recommended sell stocks. As expected, I find negative statistically detectable alpha's in all three panels if the recommended stocks have a holding period for 120 days or longer. All three models become a better predictor for the portfolio returns if the holding period becomes longer, as indicated by the R-squared. The excess market return beta is in all the holding periods larger than 1, indicating that these recommended stocks are more volatile than the market. Similar to the portfolios of recommended buy stocks are the *SMB* and *HML* coefficients positive and statistically for different holding periods (Panel B and C), while the *MOM* coefficient is negative and statistically significant for all holding periods in Panel C.

In conclusion, calendar-time portfolios that go long the buy recommendation on the first trading after the show find no statistically significant positive long-term alpha. Accounting for transaction costs as highlighted by Barbet et al. (2001) should not change this conclusion and results in even lower alpha's. For completeness, I formed those portfolios including transaction costs, which can be found in the Tables 20 and 21 of the appendix. Overall, these results suggest that the recommended buy stocks do not outperform the market in the long-term and investors would be better off investing in the market. Sell recommendations, on the other hand, significantly underperform the market and show a sharp decrease in the portfolio value, suggesting that there is some value-relevant information in the long-term. Consequently, Hypothesis 3 which states that individual investors cannot profit from analysts' recommendations in the long-term after correcting for transaction costs can only be confirmed for the buy recommendations.

**Table 7: Calendar time portfolios for buy recommendations before transaction costs**

| Variable | Hold 60 days | Hold 120 days | Hold 180 days | Hold 240 days | Hold 300 days |
|---|---|---|---|---|---|
| | | | Panel A: CAPM | | |
| Intercept | -0.0001 | -0.0004 | -0.0005** | -0.0005** | -0.0003 |
| | [-0.22] | [-1.57] | [-2.46] | [-2.24] | [-1.56] |
| MKT-RF | 0.8780*** | 1.0166*** | 1.0446*** | 1.0347*** | 0.9935*** |
| | [32.35] | [48.26] | [51.52] | [52.65] | [52.40] |
| R-squared | 0.5770 | 0.7427 | 0.7669 | 0.7745 | 0.7729 |
| Observations | 769 | 809 | 809 | 809 | 809 |
| | | | Panel B: Three-factor Model | | |
| Intercept | -0.0001 | -0.0002 | -0.0002 | -0.0002 | -0.0001 |
| | [-0.51] | [-0.76] | [-1.10] | [-0.87] | [-0.51] |
| MKT-RF | 0.9047*** | 1.0255*** | 1.0526*** | 1.0391*** | 1.0047*** |
| | [29.77] | [43.49] | [47.07] | [48.50] | [48.86] |
| SMB | 0.0024*** | 0.0019*** | 0.0019*** | 0.0019*** | 0.0022*** |
| | [3.09] | [3.12] | [3.31] | [3.34] | [4.14] |
| HML | 0.0025*** | 0.0032*** | 0.0038*** | 0.0040*** | 0.0038*** |
| | [3.52] | [6.23] | [7.79] | [8.47] | [8.57] |
| R-squared | 0.5888 | 0.7548 | 0.7850 | 0.7959 | 0.7964 |
| Observations | 769 | 797 | 797 | 797 | 797 |
| | | | Panel C: Four-factor Model | | |
| Intercept | 0.0001 | -0.0002 | -0.0003 | -0.0002 | -0.0001 |
| | [0.30] | [-0.96] | [-1.57] | [-1.22] | [-0.52] |
| MKT-RF | 0.9022*** | 1.0229*** | 1.0491*** | 1.0358*** | 1.0011*** |
| | [29.82] | [43.57] | [47.35] | [48.87] | [49.39] |
| SMB | 0.0026*** | 0.0020*** | 0.0021*** | 0.0020*** | 0.0024*** |
| | [3.32] | [3.33] | [3.59] | [3.64] | [4.50] |
| HML | 0.0015* | 0.0022*** | 0.0026*** | 0.0027*** | 0.0025*** |
| | [1.91] | [3.72] | [4.58] | [5.06] | [4.88] |
| MOM | -0.0018*** | -0.0015*** | -0.0018*** | -0.0018*** | -0.0020*** |
| | [-3.05] | [-3.37] | [-4.42] | [-4.68] | [-5.25] |
| R-squared | 0.5933 | 0.7579 | 0.7898 | 0.8012 | 0.8030 |
| Observations | 769 | 797 | 797 | 797 | 797 |

*Notes.* This table presents the regression results when daily calendar-time portfolios excess returns of recommended buy stocks are regressed on the CAPM, Three-factor Model and Four-factor model in Panel A, B, and C, respectively. Portfolio returns are composed by equally weighted stock returns of stocks included in the portfolio after the recommendation is made. The portfolios have a holding period of 60, 120, 180, 240 and 300 days in columns 1, 2, 3, 4, and 5, respectively. The daily factor returns are retrieved from Kenneth French's data website. The T-statistics are shown in brackets, and ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

**Table 8: Calendar time portfolios for sell recommendations before transaction costs**

| Variable | Hold 60 days | Hold 120 days | Hold 180 days | Hold 240 days | Hold 300 days |
|---|---|---|---|---|---|
| | | | Panel A: CAPM | | |
| Intercept | -0.0004 | -0.0008** | -0.0010*** | -0.0009*** | -0.00010*** |
| | [-0.90] | [-2.30] | [-2.74] | [-3.06] | [-3.28] |
| MKT-RF | 1.1065*** | 1.0991*** | 1.1507*** | 1.1300*** | 1.1347*** |
| | [27.95] | [33.42] | [34.98] | [40.25] | [41.24] |
| R-squared | 0.5145 | 0.5805 | 0.6025 | 0.6675 | 0.6782 |
| Observations | 739 | 809 | 809 | 809 | 809 |
| | | | Panel B: Three-factor Model | | |
| Intercept | -0.0002 | -0.0006 | -0.0007** | -0.0007** | -0.0007** |
| | [-0.44] | [-1.62] | [-2.03] | [-2.34] | [-2.51] |
| MKT-RF | 1.1200*** | 1.1024*** | 1.1586*** | 1.1478*** | 1.1579*** |
| | [25.17] | [29.36] | [30.87] | [36.23] | [37.55] |
| SMB | 0.0020* | 0.0018* | 0.0021** | 0.0028*** | 0.0032*** |
| | [1.72] | [1.90] | [2.16] | [3.43] | [3.98] |
| HML | 0.0035*** | 0.0030*** | 0.0035*** | 0.0037*** | 0.0039*** |
| | [3.40] | [3.72] | [4.25] | [5.36] | [5.81] |
| R-squared | 0.5237 | 0.5834 | 0.6077 | 0.6779 | 0.6922 |
| Observations | 739 | 797 | 797 | 797 | 797 |
| | | | Panel C: Four-factor Model | | |
| Intercept | -0.0001 | -0.0006 | -0.0007** | -0.0007** | -0.0007** |
| | [-0.33] | [-1.60] | [-2.01] | [-2.32] | [-2.50] |
| MKT-RF | 1.1173*** | 1.0973*** | 1.1545*** | 1.1438*** | 1.1534*** |
| | [25.15] | [29.44] | [30.88] | [36.32] | [37.72] |
| SMB | 0.0022* | 0.0020** | 0.0023** | 0.0030*** | 0.0033*** |
| | [1.86] | [2.11] | [2.33] | [3.63] | [4.23] |
| HML | 0.0026** | 0.0013 | 0.0021** | 0.0023*** | 0.0024*** |
| | [2.27] | [1.37] | [2.20] | [2.95] | [3.09] |
| MOM | -0.0017* | -0.0026*** | -0.0020*** | -0.0020*** | -0.0022*** |
| | [-1.96] | [-3.70] | [-2.95] | [-3.38] | [-3.93] |
| R-squared | 0.5262 | 0.5905 | 0.6120 | 0.6824 | 0.6981 |
| Observations | 739 | 797 | 797 | 797 | 797 |

*Notes.* This table presents the regression results when daily calendar-time portfolios excess returns of recommended sell stocks are regressed on the CAPM, Three-factor Model and Four-factor model in Panel A, B, and C, respectively. Portfolio returns are composed by equally weighted stock returns of stocks included in the portfolio after the recommendation is made. The portfolios have a holding period of 60, 120, 180, 240 and 300 days in columns 1, 2, 3, 4, and 5, respectively. The daily factor returns are retrieved from Kenneth French's data website. The T-statistics are shown in brackets, and ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

### 4.5 Cross-sectional regression analysis

So far I found evidence of statistically significant abnormal returns and abnormal trading volumes around the time of the show even though there is no evidence that the provided information is value relevant for in the long-term. These findings suggest that *Business Class* recommendations result in attention-driven buying behavior that temporarily push prices up as suggested by Barber and Odean (2008). To test whether this attention-grabbing hypothesis holds and which other factors drive the size of the abnormalities, I estimate a regression with both the (cumulative) abnormal returns and (cumulative) abnormal trading volumes as dependent variables.

#### 4.5.1 Abnormal returns

Table 9 and Table 10 present the regression results on (cumulative) abnormal returns for the buy recommendations and sell recommendations, respectively. The attention parameters viewership, duration, Dutch recommendations and total recommendations are used for a direct link between the *Business Class* show and the impact on stock prices. These variables are excluded from the last four models because these numbers are not known prior to the show. For the buy (sell) recommendations I would expect positive (negative) coefficients for the viewership and duration variables because abnormal returns should increase (decrease) when stocks receive more attention. I find significant positive duration coefficients for the buy recommendations in all three models. The standardized coefficient is 0.154 in model 3, which means that one standard deviation increase in duration increases the predicted CAR by 15.4 basis points in the first week. The viewership variable is for the sell recommendations statistically significant in model 3, but all the other attention parameters are for both the buy and sell recommendations not statistically different from zero. Hence, these results do not fully support the expected attention-driven buying behavior of investors and my hypothesis 6.

The coefficients of the dummy variables AEX and AMX are used to assess whether small capitalized stocks have larger abnormal returns than large capitalized stocks because these are proxies for the size of the firm. The results in Table 8 confirm hypothesis 7: stocks listed on the AEX and AMX index have lower abnormal weekend returns relative to stocks listed on the AScX index, which is statistically significant at the 1% and 5% level, respectively. Even in the week following the recommendation, firms listed on the AEX index underperform relative to firms listed on the AScX index (at the 5% significance level). For the sell recommendations, no statistically significant coefficients are found. The effect of small capitalized stocks relative to large capitalized stocks for buy recommendations is further explained when the size variable

**Table 9: Cross-sectional regression analysis (cumulative) abnormal returns for buy recommendations**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AR [0] | 2<br>CAR [0,1] | 3<br>CAR [0,5] | 4<br>CAR [-3,-1] | 5<br>CAR [-5,-1] | 6<br>CAR [-3,3] | 7<br>CAR [-10,20] |
| Viewership | 0.0000 | 0.0000 | -0.0001 | | | | |
| | [1.01] | [0.24] | [-1.27] | | | | |
| Duration | 0.0000*** | 0.0001*** | 0.0001* | | | | |
| | [2.76] | [4.05] | [1.85] | | | | |
| Dutch recommendations | -0.0004 | -0.0006 | 0.0007 | | | | |
| | [-1.01] | [-0.51] | [0.25] | | | | |
| Total recommendations | 0.0002 | 0.0004 | -0.0012 | | | | |
| | [0.58] | [0.39] | [-0.44] | | | | |
| AEX Dummy | -0.0066*** | -0.0115*** | -0.0154** | -0.0078 | -0.0138 | -0.0214 | -0.0201 |
| | [-2.92] | [-2.79] | [-2.33] | [-0.75] | [-1.11] | [-1.57] | [-0.85] |
| AMX Dummy | -0.0050** | -0.0039 | -0.0070 | -0.0091 | -0.0127 | 0.0135 | -0.0049 |
| | [-2.03] | [-0.83] | [-0.89] | [-0.90] | [-1.03] | [-0.97] | [-0.17] |
| PTBV | 0.0002 | -0.0002 | -0.0001 | -0.0008 | -0.0007 | -0.0009 | -0.0009 |
| | [-1.53] | [-0.64] | [-0.22] | [-1.45] | [-0.67] | [-1.59] | [0.46] |
| E. Wierda Dummy | -0.0020 | -0.0060 | 0.0037 | -0.0014 | 0.0024 | 0.0061 | 0.0245 |
| | [-1.35] | [-1.57] | [0.55] | [-0.22] | [0.33] | [0.71] | [1.65] |
| H. Vermeulen Dummy | -0.0000 | -0.0018 | 0.0056 | -0.0006 | 0.0011 | 0.0020 | 0.0151 |
| | [-0.02] | [-0.53] | [0.87] | [-0.12] | [0.19] | [0.32] | [0.96] |
| M. Hafkamp Dummy | -0.0031* | -0.0056 | 0.0068 | -0.0149*** | -0.0100 | -0.0092 | 0.0166 |
| | [-1.75] | [-1.34] | [0.91] | [-2.71] | [-1.19] | [-1.59] | [0.83] |
| E. Platte Dummy | -0.0016 | -0.0024 | -0.0034 | -0.0109 | -0.0008 | -0.0100 | 0.0076 |
| | [-0.80] | [-0.61] | [-0.49] | [-1.48] | [-0.08] | [-1.00] | [0.34] |
| E. Nugteren Dummy | 0.0000 | -0.0019 | 0.0084 | 0.0050 | 0.0106 | 0.0003 | 0.0364 |
| | [0.02] | [-0.37] | [0.61] | [0.55] | [1.00] | [0.03] | [0.94] |
| Reprise | -0.0000 | -0.0000 | -0.0001 | -0.0002 | -0.0000 | -0.0003** | -0.0003 |
| | [-0.70] | [-0.40] | [-0.61] | [-1.52] | [-0.03] | [-2.40] | [-1.01] |
| News Dummy | -0.0025 | -0.0025 | -0.0076 | 0.0139* | 0.0165* | 0.0005 | -0.0252* |
| | [-1.45] | [-0.73] | [-1.02] | [1.69] | [1.87] | [0.05] | [-1.80] |
| Intercept | 0.0066* | 0.0107 | 0.0331 | 0.0165** | 0.0149* | 0.0360*** | 0.0312* |
| | [1.72] | [1.35] | [1.52] | [2.16] | [1.77] | [3.49] | [1.72] |
| *R*-squared | 0.1815 | 0.1724 | 0.0844 | 0.0726 | 0.0553 | 0.0519 | 0.0384 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 10%, 5%, and 1% level, respectively.

**Table 10: Cross-sectional regression analysis (cumulative) abnormal returns for sell recommendations**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AR [0] | 2<br>CAR [0,1] | 3<br>CAR [0,5] | 4<br>CAR [-3,-1] | 5<br>CAR [-5,-1] | 6<br>CAR [-3,3] | 7<br>CAR [-10,20] |
| Viewership | 0.0000 | -0.0001 | -0.0005** | | | | |
| | [-0.29] | [-1.32] | [-2.31] | | | | |
| Duration | 0.0001 | 0.0001 | -0.0001 | | | | |
| | [0.63] | [0.68] | [-0.55] | | | | |
| Dutch recommendations | -0.0015 | 0.0004 | -0.0005 | | | | |
| | [-0.70] | [0.14] | [-0.07] | | | | |
| Total recommendations | 0.0005 | -0.0012 | -0.0094 | | | | |
| | [0.26] | [-0.33] | [-1.41] | | | | |
| AEX Dummy | 0.0022 | 0.0101 | -0.0246 | -0.0178 | 0.0062 | -0.0412 | -0.0491 |
| | [0.37] | [0.86] | [-1.41] | [-0.77] | [0.17] | [-1.50] | [-0.83] |
| AMX Dummy | 0.0082 | 0.0180 | 0.0291 | -0.0322 | -0.0089 | -0.0119 | 0.0702 |
| | [1.18] | [1.62] | [1.37] | [-1.07] | [-0.21] | [-0.35] | [0.87] |
| PTBV | 0.0000 | 0.0000 | 0.0015** | 0.0010 | -0.0002 | 0.0017** | 0.0053*** |
| | [-0.03] | [-0.06] | [2.61] | [1.61] | [-0.37] | [2.54] | [3.03] |
| E. Wierda Dummy | -0.0021 | -0.0196 | -0.0357 | -0.0338** | -0.0492* | -0.0147 | -0.0483 |
| | [-0.39] | [-1.04] | [-1.17] | [-2.60] | [-1.96] | [-0.91] | [-0.37] |
| H. Vermeulen Dummy | -0.0074 | -0.0296 | -0.0473 | -0.0258 | -0.0609 | -0.0127 | -0.0865 |
| | [-1.03] | [-1.51] | [-1.28] | [-1.47] | [-1.35] | [-0.56] | [-0.64] |
| M. Hafkamp Dummy | -0.0011 | -0.0097 | -0.0543 | -0.0280 | -0.0543** | -0.0074 | -0.0454 |
| | [-0.11] | [-0.40] | [-1.22] | [-1.27] | [-2.04] | [-0.44] | [-0.35] |
| E. Platte Dummy | -0.0015 | -0.0211 | -0.0702** | -0.0421 | -0.0360 | -0.0461 | -0.0683 |
| | [-0.29] | [-1.25] | [-2.33] | [-1.44] | [-1.00] | [-1.48] | [-0.51] |
| E. Nugteren Dummy | -0.0026 | -0.0249 | -0.0875* | -0.0404* | -0.0310 | -0.0093 | -0.0427 |
| | [-0.26] | [-1.04] | [-1.89] | [-1.85] | [-1.11] | [-0.39] | [-0.35] |
| Reprise | 0.0001 | -0.0001 | -0.0005 | 0.0008 | 0.0009 | 0.0002 | 0.0013 |
| | [0.53] | [-0.50] | [-0.81] | [1.07] | [1.17] | [0.27] | [0.69] |
| News Dummy | -0.0009 | -0.0038 | 0.0045 | -0.0232 | -0.0073 | -0.0160 | -0.0036 |
| | [-0.31] | [-0.55] | [0.34] | [-0.98] | [-0.26] | [-0.72] | [-0.08] |
| Intercept | -0.0005 | 0.0229 | 0.1781** | 0.0356* | 0.0164 | 0.0383 | 0.0284 |
| | [-0.02] | [0.65] | [2.57] | [1.75] | [0.50] | [1.60] | [0.23] |
| *R*-squared | 0.1812 | 0.2075 | 0.4436 | 0.1472 | 0.0784 | 0.1276 | 0.1516 |
| Observations | 54 | 54 | 54 | 54 | 54 | 54 | 54 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 54 sell recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 10%, 5%, and 1% level, respectively.

is included instead of the index dummies (Table 22 of the appendix). The size coefficient is negative and statistically significant level for the first three models, which indicates that a higher market capitalization results in lower (cumulative) abnormal returns, holding other factors fixed. A one standard deviation increase in size reduces the predicted abnormal weekend return by 28.2 basis points. Hence, hypothesis 7 is confirmed since there are larger abnormal returns for firms listed on the AScX relative to firms listed on the AMX and AEX.

Subsequently, I expect recommendations of value stocks (low price-to-book ratios) to have greater information value than growth stocks (high price-to-book ratio) because value stocks are less closely followed by the financial community. However, the coefficient on PTBV is for the buy recommendations in all periods not statistically different from zero. For the sell recommendations, the coefficient is positive and statistically significant at the 5% level for the periods [0,5], [-3,3] and [-10,20]. This implies that the cumulative abnormal returns will be higher when the PTBV of the stock is higher. Overall, I cannot conclude that value stocks are subject to a greater price reaction than glamour stocks. Even after following the methodology of Kerl and Walter (2007) by creating glamour and value dummies for stocks belonging to the extreme quintiles in each year in terms of price-to-book-ratios, no statistical significant coefficients are found (Table 23 of the appendix). Therefore, hypothesis 8 which states that there are larger abnormal returns for value stocks relative to growth stocks cannot be confirmed.

I used dummies for the financial analysts to assess whether the reputation and investment strategy of an analyst impacts the market reaction. First, I expect higher (cumulative) abnormal returns for Geert Schaaij since he is an independent analyst and has a good reputation ("Geert Schaaij effect"), while the other analysts are wealth managers. For the buy recommendations, I find indeed negative coefficients for all the dummy variables on the event day and the following day. This suggests that the (cumulative) abnormal returns for stocks recommended by Geert Schaaij are higher relative to the other analysts, which is consistent with hypothesis 9. But, I find no strong evidence for this as only the Martine Hafkamp dummy is statistically significant. Second, I expect that Martine Hafkamp underperforms relative to the other analysts because of her (international) investment strategy. I find in table 24 of the appendix that the dummies Han Vermeulen, Geert Schaaij and Erik van Nugteren are all positive and statistically significant relative to Martine Hafkamp in Model 1, supporting hypothesis 10. In addition, these dummies are positive and statistically significant for the period [-3,-1] and suggests outperformance before the recommendation. This front-running could be caused by relevant news of the stocks prior to the recommendation, given the statistically significant news dummy in the periods [-3,-1] and [-5,-1]. Surprisingly is that the news dummy for the sell recommendations is not statistically significant. In section 4.6, I will perform a robustness test for the abnormal returns and cross-sectional regression analysis for stock recommendations without relevant news in the days around the recommendation.

### 4.5.2 Abnormal volumes

Table 11 and Table 12 present the regression results on (cumulative) abnormal trading volumes for the buy recommendations and sell recommendations, respectively. Similar to the cross-sectional regression analysis on abnormal returns is the duration coefficient positive and statistically significant for all periods for the buy recommendations. The standardized coefficient is 0.230, which means that 1 standard deviation increase in duration increases the predicted abnormal trading volume by 23 basis points on the first trading after the show (model 1). On the other hand are the viewership coefficients negative for all periods and statistical significant for the first trading day and the following two weeks, which is against the expectations. For the sell recommendations no statistical coefficients are found. So again, not enough evidence is found that supports my attention-driven buying behavior hypothesis 6.

The AMX and AEX dummies are again negative and statistically significant for both the buy and sell recommendations for different periods. This suggests that there is larger abnormal trading volume of stocks listed on the AScX index relative to stocks listed on the AEX and AMX. This makes again economic sense as these stocks are less closely followed by the financial community and probably create attention shocks when the stock is recommended.

Regarding the differences among the analysts, I find statistical significant negative coefficients for Edwin Wierda and Martine Hafkamp relative to Geert Schaaij on the first day and weeks after the buy recommendations, indicating that investors are more likely to start trading when Geert Schaaij makes a recommendation (consistent with hypothesis 9). On the other hand, recommendations made by Etienne Platte result in larger abnormal trading volumes when days before and after are incorporated (models 6 and 7). Following hypothesis 10, I find that all analysts' dummies (except Edwin Wierda) are positive and statistically significant in the first days and weeks after the recommendation when Martine Hafkamp is used as the base-group (Table 25 of the appendix), which suggests that she is the least 'favorite' analyst. For the sell recommendations, no statistical significant dummy coefficients are found.

Again, I find statistical evidence that news events are (partially) driving the abnormal trading volumes prior to the show for the buy recommendations, but especially for the sell recommendations. This confirms my expectations that analysts base some of their

**Table 11: Cross-sectional regression analysis (cumulative) abnormal volumes for buy recommendations**

| | Dependent variable: [Cumulative] abnormal volumes | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AV [0] | 2<br>CAV [0,4] | 3<br>CAV [0,9] | 4<br>CAV [-3,-1] | 5<br>CAV [-5,-1] | 6<br>CAV [-3,3] | 7<br>CAV [-10,20] |
| Viewership | -0.0025* | -0.0088 | -0.0173* | | | | |
| | [-1.80] | [-1.47] | [-1.75] | | | | |
| Duration | 0.0027*** | 0.0088*** | 0.0135** | | | | |
| | [3.55] | [2.71] | [2.45] | | | | |
| Dutch recommendations | -0.0347 | 0.1317 | 0.2255 | | | | |
| | [-0.67] | [0.65] | [0.63] | | | | |
| Total recommendations | 0.0002 | -0.1916 | -0.3226 | | | | |
| | [0.01] | [-1.11] | [-1.03] | | | | |
| AEX Dummy | -0.4407*** | -0.7863 | -0.4445 | -0.3887 | -0.6033 | -1.3846 | -1.5634 |
| | [-2.69] | [-1.12] | [-0.36] | [-0.83] | [-0.82] | [-1.50] | [-0.41] |
| AMX Dummy | -0.3946** | -1.2930* | -1.5660 | -0.5496 | -0.8667 | -1.7862* | -4.5013 |
| | [-2.38] | [-1.93] | [-1.31] | [-1.05] | [-1.09] | [-1.88] | [-1.24] |
| PTBV | -0.0035 | 0.0129 | 0.0555 | 0.0168 | 0.0525 | 0.0318 | 0.3839 |
| | [-0.33] | [0.34] | [0.76] | [0.75] | [1.26] | [0.61] | [1.53] |
| E. Wierda Dummy | -0.3209** | -0.7782 | -2.1029** | 0.0885 | 0.1837 | 0.0361 | -0.7671 |
| | [-2.32] | [-1.57] | [-2.53] | [0.31] | [0.41] | [0.06] | [-0.36] |
| H. Vermeulen Dummy | 0.0268 | 0.5999 | 0.4437 | 0.4678 | 1.1674 | 1.2858 | 3.9572 |
| | [0.18] | [1.02] | [0.43] | [1.09] | [1.51] | [1.50] | [1.18] |
| M. Hafkamp Dummy | -0.4859*** | -1.1537* | -2.5453** | -0.3005 | -0.1828 | -0.7320 | -2.6809 |
| | [-2.98] | [-1.72] | [-2.07] | [-0.65] | [-0.26] | [-1.00] | [-1.03] |
| E. Platte Dummy | -0.1241 | 0.3096 | -0.2299 | 0.5064 | 0.8860 | 1.4200** | 4.7398** |
| | [-0.81] | [0.54] | [-0.23] | [1.30] | [1.53] | [2.11] | [2.16] |
| E. Nugteren Dummy | -0.0915 | 0.3242 | 0.6590 | 0.2822 | 0.7812 | 0.6959 | 4.1045 |
| | [-0.49] | [0.57] | [0.53] | [0.69] | [1.27] | [1.07] | [0.94] |
| Reprise | -0.0023 | -0.0139* | -0.0235* | -0.0000 | -0.0016 | -0.0096 | -0.0490 |
| | [-1.24] | [-1.92] | [-1.81] | [-0.01] | [-0.18] | [-0.95] | [-1.36] |
| News Dummy | 0.0407 | -0.1398 | -0.6624 | 0.4728** | 0.7173 | 0.4410 | -2.3143 |
| | [0.47] | [-0.35] | [-0.91] | [2.08] | [1.61] | [0.87] | [-1.11] |
| Intercept | 1.0623*** | 2.9316** | 4.9260** | 0.6451 | 0.7529 | 2.1273** | 5.0853 |
| | [3.01] | [2.12] | [2.13] | [1.45] | [1.09] | [2.39] | [1.55] |
| *R*-squared | 0.1895 | 0.1214 | 0.0999 | 0.0479 | 0.0527 | 0.0649 | 0.0628 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes.* This table exhibits the cross-sectional regression analysis on the abnormal volume of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal trading volume of the event windows AV [0], CAV [0,4], CAV [0,9], CAV [-3,1], CAV [-5,-1], CAV [-3,3], and CAV [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 10%, 5%, and 1% level, respectively.

**Table 12: Cross-sectional regression analysis (cumulative) abnormal volumes for sell recommendations**

| | Dependent variable: [Cumulative] abnormal volumes | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AV [0] | 2<br>CAV [0,4] | 3<br>CAV [0,9] | 4<br>CAV [-3,-1] | 5<br>CAV [-5,-1] | 6<br>CAV [-3,3] | 7<br>CAV [-10,20] |
| Viewership | 0.0046 | 0.0109 | 0.0135 | | | | |
| | [1.19] | [0.57] | [0.35] | | | | |
| Duration | 0.0020 | 0.0023 | 0.0038 | | | | |
| | [1.00] | [0.28] | [0.22] | | | | |
| Dutch recommendations | -0.1221 | -0.0709 | 0.2201 | | | | |
| | [-1.32] | [-0.18] | [0.26] | | | | |
| Total recommendations | 0.1152 | -0.0816 | -0.3777 | | | | |
| | [1.23] | [-0.24] | [-0.61] | | | | |
| AEX Dummy | -0.4019 | -0.9077 | -1.8212 | -1.4096* | -2.1981** | -2.0132 | -5.2389 |
| | [-1.64] | [-0.83] | [-1.08] | [-1.91] | [-2.09] | [-1.67] | [-1.44] |
| AMX Dummy | -0.1593 | 0.1305 | 0.2665 | -0.8017 | -1.5953 | -0.6869 | 0.0318 |
| | [-0.61] | [0.11] | [0.13] | [-0.89] | [-1.37] | [-0.47] | [0.01] |
| PTBV | 0.0065 | 0.0416 | 0.0656 | 0.0219 | -0.0005 | 0.0435 | 0.2257** |
| | [0.91] | [1.50] | [1.33] | [1.32] | ['-0.02] | [1.51] | [2.22] |
| E. Wierda Dummy | -0.0021 | -0.6886 | -0.7370 | -0.9805 | -1.0371 | -1.4729 | 0.4157 |
| | [-0.01] | [-0.41] | [-0.28] | [-0.83] | [-0.82] | [-0.66] | [0.10] |
| H. Vermeulen Dummy | 0.4058 | 0.4366 | 0.4304 | -0.7609 | -0.3987 | -0.4058 | 3.1513 |
| | [0.78] | [0.20] | [0.12] | [-0.54] | [-0.25] | [-0.16] | [0.58] |
| M. Hafkamp Dummy | 0.7479 | 2.9588 | 6.5426 | 0.2009 | 0.7863 | 2.8952 | 3.3448 |
| | [0.86] | [0.65] | [0.72] | [0.15] | [0.53] | [0.94] | [1.18] |
| E. Platte Dummy | 0.0835 | -0.1116 | -0.2761 | -0.2773 | -0.3341 | -0.2806 | 4.6474 |
| | [0.23] | [-0.06] | [-0.09] | [-0.21] | [-0.24] | [-0.11] | [0.94] |
| E. Nugteren Dummy | 0.8085 | 1.9470 | 4.0406 | 0.8577 | 1.4009 | 2.2938 | 9.8798** |
| | [1.21] | [0.62] | [0.65] | [0.78] | [1.16] | [1.04] | [2.24] |
| Reprise | -0.0066 | -0.0375 | -0.0774 | 0.0056 | 0.0093 | -0.0183 | -0.0750 |
| | [-0.98] | [-1.24] | [-1.38] | [0.34] | [0.43] | [-0.65] | [-0.81] |
| News | 0.4078* | 1.1363 | 2.1741 | 1.6747** | 2.2623*** | 2.5176*** | 6.4041** |
| | [2.01] | [1.59] | [1.59] | [2.42] | [2.77] | [2.82] | [2.09] |
| Intercept | -0.5986 | 0.2225 | 0.6181 | 1.3982 | 1.8741 | 1.8115 | -0.7437 |
| | [-0.56] | [0.05] | [0.07] | [0.99] | [1.27] | [0.67] | [-0.14] |
| *R*-squared | 0.3182 | 0.2626 | 0.2453 | 0.3023 | 0.3238 | 0.3158 | 0.2295 |
| Observations | 54 | 54 | 54 | 54 | 54 | 54 | 54 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal volumes of 54 sell recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal trading volume of the event windows AV [0], CAV [0,4], CAV [0,9], CAV [-3,1], CAV [-5,-1], CAV [-3,3], and CAV [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 10%, 5%, and 1% level, respectively.

recommendations on the current news, and that the reaction on that news is causing (a part) of the abnormal returns and abnormal trading volumes prior to the event. Therefore, as mentioned before, I will perform a robustness check in the next section.

### 4.6 Robustness of the results

In this section I run an important robustness check that also provides more intuition about the results. I show in Tables 13 and 14 the abnormal returns and trading volumes of recommended stocks without a news event in the week before the show. I have shown in several sections that news might be an important driver of the abnormalities, and in particular for the explanation of front-running for sell recommendations. And indeed, this is exactly what I observe in the Tables 13 and 14.

**Table 13: Average abnormal returns for recommendations without news**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -5 | -0.08% | -0.67 | 0.01 | -0.34% | -1.34 | 0.01 |
| -4 | 0.14% | 1.40 | 0.01 | -0.41% | -0.76 | 0.01 |
| -3 | 0.09% | 0.69 | 0.02 | -0.23% | -0.78 | 0.01 |
| -2 | 0.32%* | 2.38 | 0.02 | -0.21% | -0.72 | 0.01 |
| -1 | -0.07% | -0.58 | 0.01 | -0.34% | -1.43 | 0.01 |
| 0 | 0.42%*** | 7.08 | 0.01 | 0.05% | 0.39 | 0.01 |
| 1 | 0.21%** | 1.84 | 0.01 | -0.17% | -0.44 | 0.02 |
| 2 | 0.28% | 2.08 | 0.02 | 0.12% | 0.34 | 0.02 |
| 3 | 0.25%** | 2.11 | 0.02 | 0.29% | 0.95 | 0.02 |
| 4 | 0.14% | 1.12 | 0.02 | 0.24% | 1.14 | 0.01 |
| 5 | -0.06% | -0.56 | 0.01 | 0.04% | 0.14 | 0.01 |
| N | 140 | | | 25 | | |

*Notes.* This table exhibits the average abnormal returns, the T-statistics and the standard errors for different event days for both the buy and sell recommendations without any relevant news in the week prior to the recommendation. For calculating the abnormal volumes, the market model is used as a benchmark with an estimation window of 100 days [-145,-46]. The event day 0 is Sunday. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 14: Average abnormal volumes for recommendations without news**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -4 | 18.00%*** | 2.21 | 0.97 | -4.14% | -0.40 | 0.51 |
| -3 | 15.85%*** | 3.09 | 0.61 | 10.04% | 1.08 | 0.46 |
| -2 | 16.99%*** | 3.30 | 0.61 | -2.06% | -0.24 | 0.42 |
| -1 | 24.35%*** | 3.84 | 0.75 | -0.57% | -0.04 | 0.72 |
| 0 | 29.37%*** | 5.20 | 0.67 | 11.91% | 1.12 | 0.53 |
| 1 | 26.05%*** | 3.61 | 0.85 | 18.25%** | 2.21 | 0.41 |
| 2 | 19.33%*** | 4.12 | 0.56 | -1.44% | -0.19 | 0.39 |
| 3 | 16.75%*** | 3.12 | 0.64 | -1.63% | -0.15 | 0.54 |
| 4 | 14.52%*** | 2.40 | 0.72 | -0.73% | -0.09 | 0.41 |
| N | 140 | | | 25 | | |

*Notes.* This table exhibits the average abnormal trading volumes, the T-statistics and the standard errors for different event days for both the buy and sell recommendations without any relevant news in the week prior to the recommendation. For calculating the abnormal volumes, the market model including day dummies is used as a benchmark with an estimation window of 100 days [-145,-46]. The event day 0 is Monday. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

The abnormalities are in all event days preceding the sell recommendations much lower and statistically insignificant compared to the results in Table 3 and Table 5. As an illustration, I documented in Table 5 significant abnormal volumes for all days prior to the event with a peak of 42.68% on the event day -3. Instead, I now find only a significant effect on event day 1 for the trading volumes, while there is no significant effect on the event day itself for both the abnormal returns and trading volumes. This indicates that the news events were driving the large abnormalities on event day 0 and on the days preceding the *Business Class* show. However, these results still need to be interpreted with great caution given the limited sample size (25 recommendations left) and the subjective interpretation of 'relevant' news events. Using a limited sample does not provide strong statistical evidence, but rather some suggestive evidence that there is not much reaction to sell recommendations when stocks with news events prior to the show are excluded. There is still some effect for event day 1 (Tuesday) for the abnormal trading volumes, but the abnormal returns are positive from event day 2 (Tuesday). Looking for relevant news about a firm that could impact the market reaction is subjective because it is hard to draw one line and distinguish relevant news from irrelevant.

On the other hand, the results in the Tables 13 and 14 provide further evidence that the abnormalities of buy recommendations are caused by the analysts' recommendations. Less strong statistical evidence of front-running is found, but all the other event days have almost the same values and t-statistics compared to the results in Tables 3 and 5. In addition, the abnormal trading volumes are still significant from event day -4 to event day +4 and it peaks at the event day itself. As mentioned before, Karniouchina et al. (2009) even finds significant abnormal trading volumes for every day in the event window [-10,20]. While no clear reason is given for this, it suggests that analysts also base their recommendation on stocks that have been traded extensively in the past few days or weeks ("hot" stocks). Altogether, these results suggest that the abnormalities of buy recommendations are not caused by news events but rather by the analysts' recommendations. For robustness, I also estimate regressions for the buy recommendations without a news event to check whether this changes the interpretations of hypotheses 6 to 10. This is not the case, as can be found in the Tables 26 and 27 of the appendix.

## 5. Conclusion and limitations

While there is a large amount of literature in the United States on the market reaction of stock recommendations, the data aimed on the Netherlands is relatively scarce. This paper examines the abnormal returns and trading volume behavior surrounding stock recommendations made by analysts in the Dutch TV show *Business Class* covering the years 2017 to 2020. Altogether, 195 buy recommendations and 54 sell recommendations of stocks are analyzed.

As found in related studies, I find strong evidence that financial analysts' buy recommendations are associated with positive (cumulative) abnormal returns and higher trading volumes on the short-term. In the first week following the recommendation, a cumulative abnormal return of 0.92% is reported, while the cumulative abnormal trading volume is 98.90%. In addition, I document abnormal trading volumes preceding the buy recommendations, which could be the result of information leakage regarding a future recommendation or recommendations based on trading volumes (e.g. 'hot' stocks). For sell recommendations, less strong statistical evidence is found of a short-term effect. Instead, I find that those recommendations experience significant abnormalities prior to the event, which is probably the result of contaminating news events taking place within the event window.

By forming calendar-time portfolios that go long the buy recommendations one day after TV show airs, I find that long-term investors would not have achieved abnormal returns for different holding periods after controlling for market risk, size, book-to-market, and momentum effects. In fact, I find negative statistically detectable alpha's, which implies that the portfolio of buy recommendations are underperforming relative to the market. Although analysts (probably) base their sell recommendations partly on the current news, I find further failing portfolio returns in the long-run and statistical underperformance relative to the market as expected. Overall, these results are in accordance with the price-pressure hypothesis for buy recommendations, and the information hypothesis for sell recommendations.

A cross-sectional regression analysis is performed to determine the factors which drive the size of the abnormalities. For the buy recommendations is the time spent on the recommendation the only evidence that favors the attention-grabbing hypothesis, while this is for the sell recommendations the viewership of the show. Index dummies are used as a proxy to distinguish between small and large firms, and show higher abnormal returns and trading volumes for firms listed on the AScX index relative to firms listed on the AMX and AEX index. This effect is further clarified when the size variable is included instead of the index dummies. The dummies of the wealth managers are negative for both abnormal returns and trading volumes relative to independent analyst Geert Schaaij on the recommendation date, indicating larger abnormalities when the recommendation is made by an independent analyst or because of a better reputation. Martine Hafkamp, on the other hand, is the least ‘favorite’ analyst, probably because of her (international) investment strategy.

Overall, I find considerable evidence supporting the main research question that Dutch stock recommendations provided by financial analysts in the TV show *Business Class* are causing abnormal returns and trading volumes over different horizons, but especially for the buy recommendations. This contributes to the existing (international) literature with regard to stock recommendations and market efficiency in smaller markets. Although I find some overreaction on the buy recommendations, the Dutch market seems to be efficient enough that an investor cannot exploit this situation because of transaction costs. However, this paper has some limitations which can be taken into account for future research. First, the news driven results of the sell recommendations combined with the limited sample size that remained made it difficult to interpret the outcomes. Looking for ‘relevant’ news is subjective and can lead to wrong conclusions, in particular with the small remaining dataset of sell recommendations. But although I do not have strong statistical evidence for the sell recommendations, I provide at least some suggestive evidence that investors do not respond much to those recommendations, consistent with many other studies. Future research could focus on a larger dataset for sell recommendations without news events, and where it also takes the short-selling costs into account. I find further falling portfolio returns for the sell recommendations, but this does not incorporate the fee that investors have to pay for borrowing the stocks if they do not already own them. Engelberg et al. (2012) use the difference between the federal funds rate and the stocks rebate rate as a measure for this, and I have not taken this into account given the scope of this research. Second, I still find some evidence of front-running for the buy recommendations without a news event. The availability of intraday data could be interesting for this. Although the (immediate) impact of analysts’ recommendations can be measured quite accurately since the stock market is closed on Sunday, intraday data could be used for analyzing periods around the event in more detail.

# 6. Bibliography


Ajinkya, B. B., & Jain, P. C. (1989). The behavior of daily stock market trading volume. *Journal of accounting and economics, 11(4),* 331-359.

Albert Jr, R. L., & Smaby, T. R. (1996). Market response to analyst recommendations in the “dartboard” column: the information and price-pressure effects. *Review of Financial Economics, 5(1),* 59-74.

Atkins, A. B., & Sundali, J. A. (1997). Portfolio managers versus the darts: evidence from the Wall Street Journal's Dartboard Column. *Applied Economics Letters, 4(10),* 635-637.

Bank, M., Larch, M., & Peter, G. (2011). Google search volume and its influence on liquidity and returns of German stocks. *Financial markets and portfolio management*, 239-264.

Barber, B. M., & Loeffler, D. (1993). The “dartboard” column: Second-hand information and price pressure. *Journal of Finance and Quantitative Analysis, 28(2),* 273-284.

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *The review of financial studies, 21(2),* 785-818.

Barber, B. M., Lehavy, R., & Trueman, B. (2010). Ratings changes, ratings levels, and the predictive value of analysts’ recommendations. *Financial Management, 39(2),* 533-553.

Barber, B., Lehavy, R., McNichols, M., & Trueman, B. (2001). Can investors profit from the prophets? Security analyst recommendations and stock returns. *The Journal of Finance, 56(2)*, 531-563.

Bauman, W. S., Datta, S., & Iskandar-Datta, M. E. (1995). Investment analyst recommendations: a test of ‘the announcement effect’and ‘the valuable information effect’. *Journal of Business Finance & Accounting, 22(5),* 659-670.

Beltz, J., & Jennings, R. (1997). Wall street week with Louis Rukheyser” recommendations: Trading activity and performance. *Review of Financial Economics, 6(1),* 15-27.

Beneish, M. D. (1991). Stock prices and the dissemination of analysts' recommendation. *Journal of Business* , 393-416.

Bidwell, C. M. (1977). How good is institutional brokerage research? *The Journal of Portfolio Management, 3(2),* 26-31.

Bilinski, P., Cumming, D., Hass, L., Stathopoulos,, K., & Walker, M. (2019). Strategic distortions in analyst forecasts in the presence of short-term institutional investors. *Accounting and Business Research, 49(3),* 305-341.

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of computational science, 2(1)*, 1-8.

Bradshaw, M. T., Brown, L. D., & Huang, K. (2013). Do sell-side analysts exhibit differential target price forecasting ability? *Review of Accounting Studies, 18(4)*, 930-955.

Busse, J. A., & Green, T. (2002). Market efficiency in real time. *Journal of Financial Economics, 65(3)*, 415-437.

Buxbaum, M., Schultze, W., & Tiras, S. L. (2019). Target price optimism, investor sentiment, and the informativeness of target prices. *Investor Sentiment, and the Informativeness of Target Prices* .

Campbell, C. J., & Wasley, C. E. (1996). Measuring abnormal daily trading volume for samples of NYSE/ASE and NASDAQ securities using parametric and nonparametric test statistics. *Review of Quantitative Finance and Accounting, 6(3)*, 309-326.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of finance, 52(1)*, 57-82.

Cowles 3rd, A. (1933). Can stock market forecasters forecast? *Econometrica: Journal of the Econometric Society*, 309-324.

Cready, W. M., & Ramanan, R. (1991). The power of tests employing log-transformed volume in detecting abnormal trading. *Journal of accounting and economics, 14(2)*, 203-214.

Crego, J. A. (2019). *Event Studies. Reader for the course Empirical Methods in Finance* . Tilburg University .

Das, S., Martinez-Jerez, A., & Tufano, P. (2005). eInformation: A clinical study of investor discussion and sentiment. *Financial Management, 34(3)*, 103-137.

Davies, P. L., & Canes, M. (1978). Stock prices and the publication of second-hand information. *Journal of Business*, 43-56.

Demirakos, E. G., Strong, N. C., & Walker, M. (2010). Does valuation model choice affect target price accuracy? *European Accounting Review, 19(1)*, 35-72.

Dewally, M. (2003). Internet investment advice: Investing with a rock of salt. *Financial Analysts Journal, 59(4)*, 65-77.

Diefenbach, R. E. (1972). How good is institutional brokerage research? *Financial Analysts Journal, 28(1)*, 54-60.

Engelberg, J., Sasseville, C., & Williams, J. (2012). Market madness? The case of mad money. *Management Science, 58(2)*, 351-364.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The journal of Finance, 25(2)*, 383-417.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance, 47(2),* 427-465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics, 33(1),* 3-56.

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International Economic Review, 10(1),* 1-21.

Gleason, C. A., Bruce Johnson, W., & Li, H. (2013). Valuation model use and the price target performance of sell-side equity analysts. *Contemporary Accounting Research, 30(1),* 80-115.

Greene, J., & Smart, S. (1999). Liquidity provision and noise trading: Evidence from the "investment dartboard" column. *The Journal of Finance, 54(5),* 1885-1899.

Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient market. *The American economic review, 70(3),* 393-408.

Hartley, J., & Olson, M. (2018). Jim Cramer's Mad Money Charitable Trust Performance and Factor Attribution. *The Journal of Retirement, 6(1),,* 45-54.

Henderson Jr, G. V. (1990). Problems and solutions in conducting event studies. *Journal of Risk and Insurance,* 282-306.

Hirschey, M., Richardson, V. J., & Scholz, S. (2000). Stock-Price Effects of Internet Buy-Sell Recommendations: The Motley Fool Case. *Financial Review, 35(2),* 147-174.

Hirshleifer, D. A., Myers, J. N., Myers, L. A., & Teoh, S. H. (2003). Do individual investors cause post-earnings announcement drift? . *Direct Evidence From Personal Trades*.

Imam, S., Barker, R., & Clubb, C. (2008). The use of valuation models by UK investment analysts. *European Accounting Review, 17(3),* 503-535.

Imam, S., Chan, J., & Shah, S. Z. (2013). Equity valuation models and target price accuracy in Europe: Evidence from equity reports. *International Review of Financial Analysis, 28,* 9-19.

Jain, P. C., & Joh, G. H. (1988). The dependence between hourly prices and trading volume. *Journal of Financial and Quantitative Analysis, 23(3),* 269-283.

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of finance, 48(1),* 65-91.

Jensen, M. C. (1968). *The performance of mutual funds in the period 1945-1964.* 389-416: The Journal of finance, 23(2).

Karniouchina, E. V., Moore, W. L., & Cooney, K. J. (2009). Impact of mad money stock recommendations: merging financial and marketing perspectives. *Journal of Marketing, 73(6)*, 244-266.

Keasler, T. R., & McNeil, C. R. (2010). Mad Money stock recommendations: market reaction and performance. *Journal of Economics and Finance, 34(1)*, 1-22.

Kerl, A. G., & Walter, A. (2007). Market responses to buy recommendations issued by Personal Finance Magazines: effects of information, price-pressure, and company characteristics. *Review of Finance, 11(1)*, 117-141.

Kothari, S. P., & Warner, J. B. (2007). *Econometrics of event studies. In Handbook of empirical corporate finance (pp. 3-36).* Elsevier.

Krauss, A., & Stoll, H. R. (1972). Price impacts of block trading on the New York Stock Exchange. *The Journal of Finance, 27(3)*, 569-588.

Lampel, J., & Bhalla, A. (2007). The role of status seeking in online communities: Giving the gift of experience. *Journal of computer-mediated communication, 12(2)*, 434-455.

Liang, B. (1996). The "dartboard" column: The pros, the darts, and the market. *Arbeitspapier, Cleveland*.

Liang, B. (1999). Evidence from the "dartboard" column. *The Journal of Business, 72(1)*, 119-134.

Lidén, E. (2007). Swedish stock recommendations: information content or price pressure? *Multinational Finance Journal, 11(3/4)*, 253-285.

Lim, B., & Rosario, J. (2010). The performance and impact of stock picks mentioned on 'Mad Money'. *Applied Financial Economics, 20(14)*, 1113-1124.

Liu, P., Smith, S. D., & Syed, A. A. (1990). Stock price reactions to the Wall Street Journal's securities recommendations. *Journal of financial and Quantitative Analysis, 25(3)*, 399-410.

Logue, D. E., & Tuttle, D. L. (1973). Brokerage house investment advice. *Financial Review, 8(1)*, 38-54.

Neumann, J. J., & Kenny, P. M. (2007). Does Mad Money make the market go mad. *The Quarterly Review of Economics and Finance, 47(5)*, 602-615.

Odean, T. (1999). Do investors trade too much? *American economic review, 89(5)*, 1279-1298.

Palmon, D., Sudit, E. F., & Yezegel, A. (2009). The value of columnists' stock recommendations: an event study approach. *Review of Quantitative Finance and Accounting, 33(3)*, 209-232.

Pari, R. A. (1987). Wall Street Week recommendations: yes or no. *Journal of Portfolio Management, 14(1),* 74.

Pontiff, J. (1996). Costly arbitrage: Evidence from closed-end funds. *The Quarterly Journal of Economics, 111(4),* 1135-1151.

Scholes, M. (1972). The market for securities: Substitution versus price pressure and the effects of information on share prices. *The Journal of Business, 45(2),* 179-211.

Shleifer, A., & Vishny, R. W. (1997). The limits of arbitrage. *The Journal of finance, 52(1),* 35-55.

Sias, R. W., & Starks, L. T. (1995). The day-of-the-week anomaly: The role of institutional investors. *Financial Analysts Journal, 51(3),* 58-67.

Sornette, D. (2013). *Why stock markets crash: critical events in complex financial systems* . Princeton and Oxford: Princeton University Press.

Stephan, P., & von Nitzsch, R. (2013). Do individual investors' stock recommendations in online communities contain investment value? *Financial Markets and Portfolio Management, 27(2),* 149-186.

Stickel, S. E. (1995). The anatomy of the performance of buy and sell recommendations. *Financial Analysts Journal, 51(5),* 25-39.

Tumarkin, R., & Whitelaw, R. F. (2001). News or noise? Internet postings and stock prices. *Financial Analysts Journal, 57(3),* 41-51.

Ülkü, N., & Rogers, M. (2018). Who drives the Monday effect? *Journal of Economic Behavior & Organization,* 46-65.

Wijmenga, R. (1990). The performance of published Dutch stock recommendations. *Journal of Banking & Finance, 14.2-3,* 559-581.

Womack, K. L. (1996). Do brokerage analysts' recommendations have investment value? *The journal of finance, 51(1),* 137-167.

# 7. Appendix

**Table 15: Average abnormal returns using the Four-Factor Model**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -5 | -0.13% | -1.10 | 0.02 | 0.23% | 0.92 | 0.02 |
| -4 | 0.27%** | 2.67 | 0.01 | -0.84% | -1.47 | 0.04 |
| -3 | 0.18% | 1.48 | 0.02 | -0.81% | -1.53 | 0.04 |
| -2 | 0.31%** | 2.04 | 0.02 | -0.31% | -0.93 | 0.02 |
| -1 | 0.06% | 0.41 | 0.02 | -0.36% | -1.61 | 0.02 |
| 0 | 0.37%*** | 5.62 | 0.01 | -0.13% | -0.76 | 0.01 |
| 1 | 0.20%* | 1.89 | 0.02 | -0.21% | -0.92 | 0.02 |
| 2 | 0.09% | 0.74 | 0.02 | 0.62%* | 2.11 | 0.02 |
| 3 | 0.23%** | 1.75 | 0.02 | 0.20% | 0.87 | 0.02 |
| 4 | 0.14% | 1.44 | 0.01 | 0.83%* | 1.97 | 0.03 |
| 5 | -0.08% | -0.92 | 0.01 | 0.14% | 0.69 | 0.01 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the average abnormal returns, the T-statistics and the standard errors for different event days for both the buy and sell recommendations . For calculating the abnormal returns, the four-factor model is used as a benchmark with an estimation window of 100 days [-145,-46]. In order to measure the weekend returns, a sixth-trading day is created. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

**Table 16: Average abnormal returns after winsorizing the data**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -5 | -0.08% | -0.74 | 0.02 | 0.11% | 0.48 | 0.02 |
| -4 | 0.19%* | 1.91 | 0.01 | -0.32% | -0.57 | 0.04 |
| -3 | 0.07% | 0.59 | 0.02 | -0.42% | -0.79 | 0.04 |
| -2 | 0.26%* | 1.71 | 0.02 | -0.22% | -0.67 | 0.02 |
| -1 | -0.05% | -0.38 | 0.02 | -0.32% | -1.47 | 0.02 |
| 0 | 0.35%*** | 6.31 | 0.01 | -0.02% | -0.14 | 0.01 |
| 1 | 0.17%* | 1.53 | 0.02 | -0.30% | -1.35 | 0.02 |
| 2 | 0.09% | 0.72 | 0.02 | 0.41% | 1.43 | 0.02 |
| 3 | 0.21% | 1.60 | 0.02 | 0.17% | 0.79 | 0.02 |
| 4 | 0.13% | 1.29 | 0.01 | 0.36% | 0.88 | 0.03 |
| 5 | -0.08% | -0.98 | 0.01 | 0.12% | 0.62 | 0.01 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the average abnormal returns, the T-statistics and the standard errors for different event days for both the buy and sell recommendations after winsorizing the abnormal returns. For calculating the abnormal returns, the market model is used as a benchmark with an estimation window of 100 days [-145,-46]. In order to measure the weekend returns, a sixth-trading day is created. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

**Table 17: Cumulative average abnormal returns after winsorizing the data**

| Event window | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| [0,1] | 0.51%*** | 4.49 | 0.02 | -0.31% | -1.19 | 0.02 |
| [0,5] | 0.84%*** | 3.90 | 0.03 | 0.7% | 1.37 | 0.04 |
| [-3,-1] | 0.27% | 1.42 | 0.03 | -0.90%* | -1.95 | 0.03 |
| [-5,-1] | 0.37% | 1.62 | 0.03 | -1.11%** | -2.01 | 0.04 |
| [-3,3] | 1.06%*** | 3.96 | 0.04 | -0.67% | -1.23 | 0.04 |
| [-10,20] | 2.20%*** | 4.12 | 0.09 | -0.83% | -0.54 | 0.11 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the cumulative average abnormal returns, the T-statistics and the standard errors for different event windows for both the buy and sell recommendations after winsorizing the abnormal returns. The market model is used as a benchmark with an estimation window of 100 days [-145,-46]. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

**Table 18: Average abnormal trading volumes after winsorizing the data**

| Event day | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| -4 | 12.58%** | 2.04 | 0.86 | 16.14%* | 1.81 | 0.65 |
| -3 | 18.99%*** | 4.59 | 0.58 | 38.49%*** | 3.50 | 0.81 |
| -2 | 22.28%*** | 5.25 | 0.59 | 23.92%*** | 2.85 | 0.62 |
| -1 | 21.70%*** | 4.48 | 0.68 | 17.90%* | 1.67 | 0.79 |
| 0 | 27.67%*** | 6.16 | 0.63 | 27.30%*** | 2.89 | 0.69 |
| 1 | 20.22%*** | 3.66 | 0.77 | 16.77% | 0.88 | 1.40 |
| 2 | 17.94%*** | 4.54 | 0.55 | 1.94% | 0.30 | 0.47 |
| 3 | 13.86%*** | 3.27 | 0.59 | 6.36% | 0.83 | 0.57 |
| 4 | 10.47%** | 2.31 | 0.63 | 8.65% | 0.90 | 0.71 |
| | 195 | | | 54 | | |
| N | | | | | | |

*Notes.* This table exhibits the average abnormal volumes, the T-statistics and the standard errors for different event days for both the buy and sell recommendations after winsorizing the abnormal volumes. For calculating the abnormal volumes, the market model including day dummies is used as a benchmark with an estimation window of 100 days [-145,-46]. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

**Table 19: Cumulative average abnormal volumes after winsorizing the data**

| Event window | Buy | T-statistic | Standard error | Sell | T-statistic | Standard error |
|---|---|---|---|---|---|---|
| [0,4] | 86.75*** | 5.71 | 2.12 | 59.31%** | 2.23 | 1.96 |
| [0,9] | 118.71%*** | 4.29 | 3.86 | 84.74%* | 1.78 | 3.50 |
| [-3,-1] | 60.76%*** | 5.76 | 1.33 | 77.06%*** | 3.25 | 1.74 |
| [-5,-1] | 88.31%*** | 5.74 | 2.15 | 101.20%*** | 3.02 | 2.46 |
| [-3,3] | 137.06%*** | 6.79 | 2.82 | 127.73%*** | 3.23 | 2.91 |
| [-10,20] | 374.18%*** | 4.97 | 10.52 | 263.07%** | 2.11 | 9.18 |
| N | 195 | | | 54 | | |

*Notes.* This table exhibits the cumulative average abnormal volumes, the T-statistics and the standard errors for different event windows for both the buy and sell recommendations after winsorizing the abnormal volumes. The market model including day dummies is used as a benchmark with an estimation window of 100 days [-145,-46]. T-statistics with an absolute value of 2.58, 1.96, and 1.65 indicate significance at the 1%, 5%, and 10% levels, respectively. In this table *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level.

**Table 20: Calendar time portfolios for buy recommendations including transaction costs**

| Variable | Hold 60 days | Hold 120 days | Hold 180 days | Hold 240 days | Hold 300 days |
|---|---|---|---|---|---|
| | | | Panel A: CAPM | | |
| Intercept | -0.0002 | -0.0004* | -0.0006*** | -0.0005** | -0.0004* |
| | [-0.72] | [-1.94] | [-2.76] | [-2.50] | [-1.81] |
| MKT-RF | 0.8787*** | 1.0121*** | 1.0448*** | 1.0347*** | 0.9933*** |
| | [32.09] | [47.92] | [51.23] | [52.36] | [52.09] |
| R-squared | 0.5731 | 0.7400 | 0.7648 | 0.7726 | 0.7708 |
| Observations | 769 | 809 | 809 | 809 | 809 |
| | | | Panel B: Three-factor Model | | |
| Intercept | -0.0001 | -0.0003 | -0.0004* | -0.0003 | -0.0002 |
| | [-0.34] | [-1.37] | [-1.91] | [-1.54] | [-0.84] |
| MKT-RF | 0.9071*** | 1.0274*** | 1.0538*** | 1.0402*** | 1.0057*** |
| | [29.57] | [43.16] | [46.75] | [48.17] | [48.52] |
| SMB | 0.0025*** | 0.0020*** | 0.0020*** | 0.0019*** | 0.0022*** |
| | [3.14] | [3.19] | [3.37] | [3.40] | [4.20] |
| HML | 0.0025*** | 0.0032*** | 0.0038*** | 0.0039*** | 0.0038*** |
| | [3.47] | [6.16] | [7.72] | [8.41] | [8.50] |
| R-squared | 0.5845 | 0.7517 | 0.7825 | 0.7936 | 0.7940 |
| Observations | 769 | 797 | 797 | 797 | 797 |
| | | | Panel C: Four-factor Model | | |
| Intercept | -0.0001 | -0.0003 | -0.0004* | -0.0003 | -0.0002 |
| | [-0.20] | [-1.36] | [-1.89] | [-1.52] | [-0.81] |
| MKT-RF | 0.9039*** | 1.0243*** | 1.0501*** | 1.0365*** | 1.0017*** |
| | [29.62] | [43.29] | [47.10] | [48.60] | [49.11] |
| SMB | 0.0027*** | 0.0021*** | 0.0021*** | 0.0020*** | 0.0024*** |
| | [3.37] | [3.40] | [3.65] | [3.70] | [4.55] |
| HML | 0.0014* | 0.0022*** | 0.0025*** | 0.0027*** | 0.0025*** |
| | [1.82] | [3.63] | [4.50] | [4.99] | [4.81] |
| MOM | -0.0019*** | -0.0015*** | -0.0018*** | -0.0019*** | -0.0020*** |
| | [-3.16] | [-3.43] | [-4.46] | [-4.70] | [-5.27] |
| R-squared | 0.5899 | 0.7553 | 0.7879 | 0.7793 | 0.8010 |
| Observations | 769 | 797 | 797 | 797 | 797 |

*Notes.* This table presents the regression results when daily calendar-time portfolios excess returns of recommended buy stocks are regressed on the CAPM, Three-factor Model and Four-factor model in Panel A, B, and C, respectively. Portfolio returns are composed by equally weighted stock returns of stocks included in the portfolio after the recommendation is made and incorporate transaction costs. The portfolios have a holding period of 60, 120, 180, 240 and 300 days in columns 1, 2, 3, 4, and 5, respectively. The daily factor returns are retrieved from Kenneth French's data website. The T-statistics are shown in brackets, and ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

**Table 21: Calendar time portfolios for sell recommendations including transaction costs**

| Variable | Hold 60 days | Hold 120 days | Hold 180 days | Hold 240 days | Hold 300 days |
|---|---|---|---|---|---|
| | | | Panel A: CAPM | | |
| Intercept | -0.0005 | -0.0009** | -0.0010** | -0.0010*** | -0.0010*** |
| | [-1.24] | [-2.49] | [-2.90] | [-3.22] | [-3.42] |
| MKT-RF | 1.1069*** | 1.0992*** | 1.1507*** | 1.1299*** | 1.1346*** |
| | [27.83] | [33.39] | [34.97] | [40.24] | [41.24] |
| R-squared | 0.5125 | 0.5801 | 0.6024 | 0.6674 | 0.6781 |
| Observations | 739 | 809 | 809 | 809 | 809 |
| | | | Panel B: Three-factor Model | | |
| Intercept | -0.0003 | -0.0007* | -0.0008** | -0.0008** | -0.0008*** |
| | [-1.05] | [-2.40] | [-2.74] | [-3.18] | [-3.45] |
| MKT-RF | 1.1203*** | 1.1026*** | 1.1588*** | 1.1478*** | 1.1579*** |
| | [25.06] | [29.34] | [30.87] | [36.23] | [37.55] |
| SMB | 0.0020* | 0.0019* | 0.0021** | 0.0028*** | 0.0032*** |
| | [1.71] | [1.91] | [2.17] | [3.44] | [3.99] |
| HML | 0.0035*** | 0.0030*** | 0.0035*** | 0.0037*** | 0.0039*** |
| | [3.35] | [3.71] | [4.25] | [5.35] | [5.81] |
| R-squared | 0.5214 | 0.5830 | 0.6076 | 0.6777 | 0.6921 |
| Observations | 739 | 797 | 797 | 797 | 797 |
| | | | Panel C: Four-factor Model | | |
| Intercept | -0.0003 | -0.0006* | -0.0008** | -0.0008** | -0.0008** |
| | [-0.67] | [-1.80] | [-2.18] | [-2.48] | [-2.65] |
| MKT-RF | 1.1176*** | 1.0974*** | 1.1547*** | 1.1438*** | 1.1534*** |
| | [25.04] | [29.42] | [30.89] | [36.31] | [37.72] |
| SMB | 0.0022* | 0.0020** | 0.0023** | 0.0030*** | 0.0034*** |
| | [1.84] | [2.12] | [2.34] | [3.64] | [4.24] |
| HML | 0.0025** | 0.0013 | 0.0021** | 0.0023*** | 0.0024*** |
| | [2.21] | [1.35] | [2.19] | [2.94] | [3.08] |
| MOM | -0.0018* | -0.0026*** | -0.0021*** | -0.0020*** | -0.0022*** |
| | [-2.01] | [-3.73] | [-2.98] | [-3.40] | [-3.95] |
| R-squared | 0.5241 | 0.5902 | 0.6120 | 0.6823 | 0.6981 |
| Observations | 739 | 797 | 797 | 797 | 797 |

*Notes.* This table presents the regression results when daily calendar-time portfolios excess returns of recommended sell stocks are regressed on the CAPM, Three-factor Model and Four-factor model in Panel A, B, and C, respectively. Portfolio returns are composed by equally weighted stock returns of stocks included in the portfolio after the recommendation is made and incorporate transaction costs. The portfolios have a holding period of 60, 120, 180, 240 and 300 days in columns 1, 2, 3, 4, and 5, respectively. The daily factor returns are retrieved from Kenneth French's data website. The T-statistics are shown in brackets, and ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

**Table 22: Cross-sectional regression analysis (cumulative) abnormal returns for buy recommendations (size instead of index dummies)**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AR [0] | 2<br>CAR [0,1] | 3<br>CAR [0,5] | 4<br>CAR [-3,-1] | 5<br>CAR [-5,-1] | 6<br>CAR [-3,3] | 7<br>CAR [-10,20] |
| Viewership | 0.0000 | 0.0000 | -0.0001 | | | | |
| | [0.93] | [0.21] | [-1.27] | | | | |
| Duration | 0.0000** | 0.0001*** | 0.0001* | | | | |
| | [2.64] | [3.88] | [1.71] | | | | |
| Dutch recommendations | -0.0005 | -0.0005 | 0.0008 | | | | |
| | [-1.21] | [-0.46] | [0.29] | | | | |
| Total recommendations | 0.0003 | 0.0004 | -0.0011 | | | | |
| | [0.85] | [0.39] | [-0.42] | | | | |
| Size | -0.0012*** | -0.0022*** | -0.0036** | 0.0001 | 0.0001 | -0.0036* | -0.0051 |
| | [-3.69] | [-3.40] | [-2.60] | [0.04] | [0.03] | [-1.83] | [-1.41] |
| PTBV | 0.0002 | -0.0003 | -0.0002 | -0.0009 | -0.0008 | -0.0012* | 0.0007 |
| | [1.08] | [-0.85] | [-0.51] | [-1.64] | [-0.81] | [-1.97] | [0.39] |
| E. Wierda Dummy | -0.0024* | -0.0065* | 0.0034 | -0.0024 | 0.0007 | 0.0047 | 0.0239 |
| | [-1.67] | [-1.76] | [0.46] | [-0.38] | [0.09] | [0.55] | [1.66] |
| H. Vermeulen Dummy | -0.0008 | -0.0024 | 0.0051 | -0.0028 | -0.0023 | -0.0001 | 0.0153 |
| | [-0.46] | [-0.66] | [0.76] | [-0.62] | [-0.40] | [-0.02] | [1.02] |
| M. Hafkamp Dummy | -0.0035** | -0.0049 | 0.0085 | -0.0177*** | -0.0142* | -0.0103* | 0.0190 |
| | [-2.22] | [-1.24] | [1.12] | [-3.34] | [-1.76] | [-1.97] | [0.99] |
| E. Platte Dummy | -0.0029 | -0.0032 | -0.0049 | -0.0127* | -0.0030 | -0.0134 | 0.0059 |
| | [-1.65] | [-0.72] | [-0.67] | [-1.96] | [-0.36] | [-1.47] | [0.26] |
| E. Nugteren Dummy | -0.0007 | -0.0020 | 0.0083 | 0.0032 | 0.0080 | -0.0018 | 0.0365 |
| | [-0.39] | [-0.39] | [0.59] | [0.36] | [0.76] | [-0.18] | [0.98] |
| Reprise | -0.0000 | -0.0000 | -0.0001 | -0.0002 | -0.0000 | -0.0003** | -0.0003 |
| | [-0.65] | [-0.26] | [-0.51] | [-1.56] | [-0.11] | [-2.41] | [-0.98] |
| News Dummy | -0.0019 | -0.0018 | -0.0058 | 0.0139* | 0.0161* | 0.0020 | -0.0232 |
| | [-1.06] | [-0.52] | [-0.74] | [1.68] | [1.85] | [0.17] | [-1.63] |
| Intercept | 0.0122*** | 0.0229** | 0.0535** | 0.0107 | 0.0055 | 0.0532*** | 0.0630* |
| | [2.65] | [2.31] | [2.01] | [0.84] | [0.34] | [3.09] | [1.91] |
| *R*-squared | 0.1753 | 0.1551 | 0.0899 | 0.0654 | 0.0421 | 0.0469 | 0.0392 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *Size* is the natural logarithm of market capitalization (in thousands) on the last day prior to the recommendation.*PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are analyst dummies where Geert Schaaij is used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 23: Cross-sectional regression analysis (cumulative) abnormal returns for buy recommendations (glamour and value dummies instead of PTBV)**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | AR [0] | CAR [0,1] | CAR [0,5] | CAR [-3,-1] | CAR [-5,-1] | CAR [-3,3] | CAR [-10,20] |
| Viewership | 0.0000 | 0.0000 | -0.0001 | | | | |
| | [0.98] | [0.25] | [-1.27] | | | | |
| Duration | 0.0000*** | 0.0001*** | 0.0001* | | | | |
| | [2.89] | [4.03] | [1.83] | | | | |
| Dutch recommendations | -0.0004 | -0.0005 | 0.0008 | | | | |
| | [-1.05] | [-0.40] | [0.27] | | | | |
| Total recommendations | 0.0002 | 0.0003 | -0.0012 | | | | |
| | [0.56] | [0.28] | [-0.45] | | | | |
| AEX Dummy | -0.0067*** | -0.0115*** | -0.0151** | -0.0081 | -0.0137 | -0.0216 | -0.0207 |
| | [-2.95] | [-2.78] | [-2.23] | [-0.78] | [-1.10] | [-1.57] | [-0.87] |
| AMX Dummy | -0.0048* | -0.0038 | -0.0069 | -0.0108 | -0.0124 | -0.0155 | 0.0010 |
| | [-1.94] | [-0.79] | [-0.87] | [-1.03] | [-0.99] | [-1.08] | [0.04] |
| Glamour Dummy | 0.0031 | -0.0017 | -0.0043 | -0.0075 | -0.0040 | -0.0120 | 0.0350 |
| | [1.34] | [-0.53] | [-0.74] | [-0.96] | [-0.40] | [-1.28] | [1.52] |
| Value Dummy | -0.0005 | 0.0043 | 0.0004 | -0.0024 | 0.0107 | -0.0049 | 0.0406 |
| | [-0.46] | [0.61] | [0.04] | [-0.28] | [1.06] | [-0.44] | [1.50] |
| E. Wierda Dummy | -0.0019 | -0.0065* | 0.0036 | -0.0018 | 0.0007 | 0.0061 | 0.0202 |
| | [-1.26] | [-1.75] | [0.53] | [-0.26] | [0.10] | [0.69] | [1.35] |
| H. Vermeulen Dummy | -0.0003 | -0.0016 | 0.0060 | 0.0001 | 0.0018 | 0.0031 | 0.0126 |
| | [-0.20] | [-0.45] | [0.89] | [0.02] | [0.28] | [0.47] | [0.76] |
| M. Hafkamp Dummy | -0.0033* | -0.0049 | 0.0065 | -0.0141** | -0.0090 | -0.0086 | 0.0191 |
| | [-1.85] | [-1.28] | [0.88] | [-2.55] | [-1.09] | [-1.45] | [0.99] |
| E. Platte Dummy | -0.0017 | -0.0021 | -0.0036 | -0.0106 | -0.0003 | -0.0099 | 0.0093 |
| | [-0.85] | [-0.48] | [-0.48] | [-1.44] | [-0.03] | [-0.99] | [0.42] |
| E. Nugteren Dummy | -0.0002 | -0.0019 | 0.0084 | 0.0061 | 0.0102 | 0.0017 | 0.0318 |
| | [-0.09] | [-0.41] | [0.61] | [0.67] | [0.95] | [0.17] | [0.89] |
| Reprise | -0.0000 | -0.0000 | -0.0001 | -0.0002 | -0.0000 | -0.0003** | -0.0004 |
| | [-0.63] | [-0.57] | [-0.60] | [-1.36] | [-0.24] | [-2.14] | [-1.59] |
| News Dummy | -0.0027 | -0.0026 | -0.0071 | 0.0139 | 0.0159* | 0.0012 | -0.0294** |
| | [-1.43] | [-0.77] | [-0.91] | [1.63] | [1.76] | [0.10] | [-2.21] |
| Intercept | 0.0071* | 0.0100 | 0.0331 | 0.0154* | 0.0124 | 0.0349*** | 0.0281 |
| | [1.81] | [1.22] | [1.48] | [1.92] | [1.44] | [3.29] | [1.51] |
| *R*-squared | 0.1796 | 0.1751 | 0.0855 | 0.0660 | 0.0575 | 0.0502 | 0.0612 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *Value* is a dummy variable that takes the value of 1 if the stock belongs to the quintile with the smallest price-to-book-ratio. *Glamour* is a dummy variable that takes the value of 1 if the stock belongs to the quintile with the highest price-to-book-ratio *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 24: Cross-sectional regression analysis (cumulative) abnormal returns for buy recommendations (Martine Hafkamp as base group instead of Geert Schaaij)**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AR [0] | 2<br>CAR [0,1] | 3<br>CAR [0,5] | 4<br>CAR [-3,-1] | 5<br>CAR [-5,-1] | 6<br>CAR [-3,3] | 7<br>CAR [-10,20] |
| Viewership | 0.0000 | 0.0000 | -0.0001 | | | | |
| | [1.01] | [0.24] | [-1.27] | | | | |
| Duration | 0.0000*** | 0.0001*** | 0.0001* | | | | |
| | [2.76] | [4.05] | [1.85] | | | | |
| Dutch recommendations | -0.0004 | -0.0006 | 0.0007 | | | | |
| | [-1.01] | [-0.51] | [0.25] | | | | |
| Total recommendations | 0.0002 | 0.0004 | -0.0012 | | | | |
| | [0.58] | [0.39] | [-0.44] | | | | |
| AEX Dummy | -0.0066*** | -0.0115*** | -0.0154** | -0.0078 | -0.0138 | -0.0214 | -0.0201 |
| | [-2.92] | [-2.79] | [-2.33] | [-0.75] | [-1.11] | [-1.57] | [-0.85] |
| AMX Dummy | -0.0050** | -0.0039 | -0.0070 | -0.0091 | -0.0127 | 0.0135 | -0.0049 |
| | [-2.03] | [-0.83] | [-0.89] | [-0.90] | [-1.03] | [-0.97] | [-0.17] |
| PTBV | 0.0002 | -0.0002 | -0.0001 | -0.0008 | -0.0007 | -0.0009 | -0.0009 |
| | [-1.53] | [-0.64] | [-0.22] | [-1.45] | [-0.67] | [-1.59] | [0.46] |
| E. Wierda Dummy | 0.0011 | -0.0004 | -0.0031 | 0.0135* | 0.0124 | 0.0153 | 0.0079 |
| | [0.89] | [-0.12] | [-0.35] | [1.80] | [1.27] | [1.47] | [0.37] |
| H. Vermeulen Dummy | 0.0031* | 0.0038 | -0.0012 | 0.0143*** | 0.0111 | 0.0111* | -0.0015 |
| | [1.78] | [0.86] | [-0.12] | [2.74] | [1.39] | [1.71] | [-0.07] |
| G. Schaaij Dummy | 0.0031* | 0.0056 | -0.0068 | 0.0149*** | 0.0100 | 0.0092 | -0.0166 |
| | [1.75] | [1.34] | [-0.91] | [2.71] | [1.19] | [1.59] | [-0.83] |
| E. Platte Dummy | 0.0015 | 0.0032 | -0.0102 | 0.0040 | 0.0092 | -0.0008 | -0.009 |
| | [0.91] | [0.73] | [-1.27] | [0.58] | [0.89] | [-0.08] | [-0.34] |
| E. Nugteren Dummy | 0.0032** | 0.0037 | 0.0016 | 0.0199** | 0.0206* | 0.0094 | 0.0198 |
| | [2.29] | [0.74] | [0.12] | [2.18] | [1.78] | [0.89] | [0.50] |
| Reprise | -0.0000 | -0.0000 | -0.0001 | -0.0002 | -0.0000 | -0.0003** | -0.0003 |
| | [-0.70] | [-0.40] | [-0.61] | [-1.52] | [-0.03] | [-2.40] | [-1.01] |
| News Dummy | -0.0025 | -0.0025 | -0.0076 | 0.0139* | 0.0165* | 0.0005 | -0.0252* |
| | [-1.45] | [-0.73] | [-1.02] | [1.69] | [1.87] | [0.05] | [-1.80] |
| Intercept | 0.0035 | 0.0051 | 0.0398* | 0.0016 | 0.0049 | 0.0268** | 0.0478* |
| | [0.90] | [0.58] | [1.89] | [0.16] | [0.39] | [2.01] | [1.69] |
| *R*-squared | 0.1815 | 0.1724 | 0.0844 | 0.0726 | 0.0553 | 0.0519 | 0.0384 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Martine Hafkamp are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 25: Cross-sectional regression analysis (cumulative) abnormal volumes for buy recommendations (Martine Hafkamp as base group instead of Geert Schaaij)**

| | Dependent variable: [Cumulative] abnormal volumes | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AV [0] | 2<br>CAV [0,4] | 3<br>CAV [0,9] | 4<br>CAV [-3,-1] | 5<br>CAV [-5,-1] | 6<br>CAV [-3,3] | 7<br>CAV [-10,20] |
| Viewership | -0.0025* | -0.0088 | -0.0173* | | | | |
| | [-1.80] | [-1.47] | [-1.75] | | | | |
| Duration | 0.0027*** | 0.0088*** | 0.0135** | | | | |
| | [3.55] | [2.71] | [2.45] | | | | |
| Dutch recommendations | -0.0347 | 0.1317 | 0.2255 | | | | |
| | [-0.67] | [0.65] | [0.63] | | | | |
| Total recommendations | 0.0002 | -0.1916 | -0.3226 | | | | |
| | [0.01] | [-1.11] | [-1.03] | | | | |
| AEX Dummy | -0.4407*** | -0.7863 | -0.4445 | -0.3887 | -0.6033 | -1.3846 | -1.5634 |
| | [-2.69] | [-1.12] | [-0.36] | [-0.83] | [-0.82] | [-1.50] | [-0.41] |
| AMX Dummy | -0.3946** | -1.2930* | -1.5660 | -0.5496 | -0.8667 | -1.7862* | -4.5013 |
| | [-2.38] | [-1.93] | [-1.31] | [-1.05] | [-1.09] | [-1.88] | [-1.24] |
| PTBV | -0.0035 | 0.0129 | 0.0555 | 0.0168 | 0.0525 | 0.0318 | 0.3839 |
| | [-0.33] | [0.34] | [0.76] | [0.75] | [1.26] | [0.61] | [1.53] |
| E. Wierda Dummy | 0.1650 | 0.3755 | 0.4425 | 0.3890 | 0.3665 | 0.7681 | 1.9138 |
| | [1.28] | [0.58] | [0.36] | [0.89] | [0.57] | [1.00] | [0.73] |
| H. Vermeulen Dummy | 0.5127*** | 1.7536** | 2.9890* | 0.7682 | 1.3502* | 2.0178** | 6.6381** |
| | [2.65] | [2.01] | [1.92] | [1.65] | [1.73] | [2.32] | [2.08] |
| G. Schaaij Dummy | 0.4859*** | 1.1537* | 2.5453** | 0.3005 | 0.1828 | 0.7320 | 2.6809 |
| | [2.98] | [1.72] | [2.07] | [0.65] | [0.26] | [1.00] | [1.03] |
| E. Platte Dummy | 0.3618*** | 1.4633** | 2.3155* | 0.8069* | 1.0688* | 2.1520*** | 7.4207*** |
| | [2.80] | [2.15] | [1.83] | [1.84] | [1.71] | [2.85] | [3.01] |
| E. Nugteren Dummy | 0.3944** | 1.4779** | 3.2043** | 0.5827 | 0.9641 | 1.4280* | 6.7855 |
| | [2.28] | [2.20] | [2.11] | [1.10] | [1.23] | [1.67] | [1.40] |
| Reprise | -0.0023 | -0.0139* | -0.0235* | -0.0000 | -0.0016 | -0.0096 | -0.0490 |
| | [-1.24] | [-1.92] | [-1.81] | [-0.01] | [-0.18] | [-0.95] | [-1.36] |
| News Dummy | 0.0407 | -0.1398 | -0.6624 | 0.4728** | 0.7173 | 0.4410 | -2.3143 |
| | [0.47] | [-0.35] | [-0.91] | [2.08] | [1.61] | [0.87] | [-1.11] |
| Intercept | 0.5764* | 1.7779 | 2.3807 | 0.3446 | 0.5700 | 1.3952 | 2.4043 |
| | [1.77] | [1.37] | [1.01] | [0.55] | [0.61] | [1.26] | [0.60] |
| *R*-squared | 0.1895 | 0.1214 | 0.0999 | 0.0479 | 0.0527 | 0.0649 | 0.0628 |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 |

*Notes.* This table exhibits the cross-sectional regression analysis on the abnormal volume of 195 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal trading volume of the event windows AV [0], CAV [0,4], CAV [0,9], CAV [-3,1], CAV [-5,-1], CAV [-3,3], and CAV [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. *News dummy* is a variable which takes the value of 1 if there was relevant news in the days around the recommendation, and 0 otherwise. The other variables are also dummies, where the AScX and Martine Hafkamp are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 26: Cross-sectional regression analysis (cumulative) abnormal returns for buy recommendations without a news event**

| | Dependent variable: [Cumulative] abnormal returns | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AR [0] | 2<br>CAR [0,1] | 3<br>CAR [0,5] | 4<br>CAR [-3,-1] | 5<br>CAR [-5,-1] | 6<br>CAR [-3,3] | 7<br>CAR [-10,20] |
| Viewership | 0.0000 | -0.0000 | -0.0001 | | | | |
| | [1.05] | [-0.56] | [-1.11] | | | | |
| Duration | 0.0000* | 0.0001*** | 0.0001* | | | | |
| | [1.81] | [2.81] | [0.31] | | | | |
| Dutch recommendations | 0.0000 | 0.0007 | 0.0013 | | | | |
| | [0.02] | [0.57] | [0.47] | | | | |
| Total recommendations | -0.0002 | -0.0007 | -0.0012 | | | | |
| | [-0.35] | [-0.79] | [-0.53] | | | | |
| AEX Dummy | -0.0052*** | -0.0109** | -0.0163** | -0.0075 | -0.0168* | -0.0207* | -0.0359 |
| | [-2.98] | [-2.28] | [-2.06] | [-0.90] | [-1.85] | [-1.80] | [-1.34] |
| AMX Dummy | -0.0026 | -0.0019 | -0.0020 | -0.0073 | -0.0134 | -0.0031 | -0.0127 |
| | [-1.36] | [-0.34] | [-0.21] | [-0.93] | [-1.49] | [-0.25] | [-0.41] |
| PTBV | 0.0002 | -0.0001 | -0.0006 | -0.0007* | -0.0004 | -0.0014** | 0.0027 |
| | [0.83] | [-0.37] | [-1.30] | [-1.97] | [-0.90] | [-2.07] | [1.5] |
| E. Wierda Dummy | -0.0009 | -0.0066* | 0.0001 | -0.0044 | -0.0000 | -0.0028 | 0.0334* |
| | [-0.41] | [-1.81] | [0.01] | [-0.76] | [-0.00] | [-0.36] | [1.94] |
| H. Vermeulen Dummy | -0.0005 | -0.0038 | 0.0056 | -0.0062 | -0.0010 | -0.0045 | 0.0256 |
| | [-0.26] | [-0.89] | [0.76] | [-1.06] | [-0.15] | [-0.46] | [1.27] |
| M. Hafkamp Dummy | -0.0016 | -0.0019 | 0.0134 | -0.0087 | -0.0056 | -0.0066 | 0.0285 |
| | [-0.63] | [-0.41] | [1.27] | [-1.24] | [-0.80] | [-0.64] | [1.06] |
| E. Platte Dummy | -0.0026 | -0.0075* | -0.0022 | -0.0123* | -0.0042 | -0.0163* | 0.0102 |
| | [-1.24] | [-1.81] | [-0.32] | [-1.93] | [-0.51] | [-1.84] | [0.36] |
| E. Nugteren Dummy | 0.0002 | -0.0029 | 0.0057 | 0.0020 | 0.0092 | -0.0059 | 0.0481 |
| | -0.0800 | [-0.52] | [0.40] | [0.22] | [0.9] | [-0.55] | [1.19] |
| Reprise | -0.0000 | -0.0000 | -0.0000 | -0.0002* | -0.0001 | -0.0004*** | -0.0005 |
| | [-0.88] | [-0.63] | [-0.09] | [-1.88] | [-0.81] | [-2.69] | [-1.26] |
| Intercept | 0.0050 | 0.0161* | 0.0326 | 0.0194** | 0.0198** | 0.0392*** | 0.0324 |
| | [1.11] | [1.93] | [1.43] | [2.26] | [2.16] | [3.44] | [1.63] |
| *R*-squared | 0.1729 | 0.1924 | 0.0941 | 0.0692 | 0.0531 | 0.1151 | 0.0442 |
| Observations | 140 | 140 | 140 | 140 | 140 | 140 | 140 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal returns of 140 buy recommendations without a news event using clustered standard errors. The dependent variable is the (cumulative) abnormal return of the event windows AR [0], CAR [0,1], CAR [0,5], CAR [-3,1], CAR [-5,-1], CAR [-3,3], and CAR [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company. The other variables are also dummies, where the AScX and Geert Schaaij are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 27: Cross-sectional regression analysis (cumulative) abnormal volumes for buy recommendations without a news event**

| | Dependent variable: [Cumulative] abnormal volumes | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1<br>AV [0] | 2<br>CAV [0,4] | 3<br>CAV [0,9] | 4<br>CAV [-3,-1] | 5<br>CAV [-5,-1] | 6<br>CAV [-3,3] | 7<br>CAV [-10,20] |
| Viewership | -0.0033* | -0.0136* | -0.0278** | | | | |
| | [-1.93] | [-1.77] | [-2.03] | | | | |
| Duration | 0.0031*** | 0.0085** | 0.0131* | | | | |
| | [3.44] | [2.31] | [1.94] | | | | |
| Dutch recommendations | -0.0100 | 0.2436 | 0.3921 | | | | |
| | [-0.10] | [1.18] | [1.03] | | | | |
| Total recommendations | -0.0294 | -0.2958* | -0.5016 | | | | |
| | [-0.73] | [-1.74] | [-1.48] | | | | |
| AEX Dummy | -0.4162** | -0.6622 | -0.4301 | -0.1499 | -0.1442 | -0.9553 | 0.246 |
| | [-2.25] | [-0.81] | [-0.29] | [-0.25] | [-0.16] | [-0.82] | [0.05] |
| AMX Dummy | -0.4377** | -1.4225* | -1.9050 | -0.4689 | -0.7427 | -1.7712 | -3.9613 |
| | [-2.32] | [-1.73] | [-1.26] | [-0.75] | [-0.80] | [-1.54] | [-0.93] |
| PTBV | 0.0139 | 0.0760 | 0.1707 | 0.0305 | 0.1098* | 0.0893 | 0.6815 |
| | [0.85] | [1.29] | [1.33] | [0.93] | [1.78] | [1.08] | [1.30] |
| E. Wierda Dummy | -0.3997*** | -1.1878* | -2.9182*** | 0.1179 | 0.1688 | -0.2210 | -1.9456 |
| | [-2.66] | [-1.94] | [-2.88] | [0.32] | [0.29] | [-0.30] | [-0.68] |
| H. Vermeulen Dummy | 0.0231 | 0.5366 | 0.2765 | 0.6852 | 1.4827 | 1.6223 | 4.1486 |
| | [0.14] | [0.73] | [0.23] | [1.31] | [1.52] | [1.46] | [0.97] |
| M. Hafkamp Dummy | -0.5021*** | -1.4720** | -3.3239*** | -0.3573 | -0.4563 | -1.1192 | -6.1922*** |
| | [-3.43] | [-2.33] | [-2.97] | [-0.91] | [-0.72] | [-1.65] | [-2.81] |
| E. Platte Dummy | -0.2309 | -0.1058 | -1.2453 | 0.4087 | 0.6716 | 1.0162 | 2.1948 |
| | [-1.51] | [-0.18] | [-1.15] | [0.88] | [0.94] | [1.23] | [0.88] |
| E. Nugteren Dummy | -0.0864 | 0.2346 | 0.4034 | 0.3529 | 0.8405 | 0.7123 | 3.5451 |
| | [-0.46] | [0.38] | [0.33] | [0.78] | [1.18] | [0.91] | [0.69] |
| Reprise | -0.0029 | -0.0140 | -0.0284 | -0.0002 | 0.0015 | -0.0099 | -0.0494 |
| | [-1.07] | [-1.30] | [-1.44] | [-0.03] | [0.13] | [-0.72] | [-0.96] |
| Intercept | 1.1866*** | 3.6465** | 6.8344** | 0.4190 | 0.2889 | 1.8466 | 4.2253 |
| | [2.86] | [2.14] | [2.23] | [0.77] | [0.35] | [1.65] | [1.05] |
| *R*-squared | 0.2069 | 0.1464 | 0.1354 | 0.039 | 0.0641 | 0.0713 | 0.0768 |
| Observations | 140 | 140 | 140 | 140 | 140 | 140 | 140 |

*Notes*. This table exhibits the cross-sectional regression analysis on the abnormal volumes of 140 buy recommendations using clustered standard errors. The dependent variable is the (cumulative) abnormal trading volume of the event windows AV [0], CAV [0,4], CAV [0,9], CAV [-3,1], CAV [-5,-1], CAV [-3,3], and CAV [-10,20]. *Viewership* is the number of households (in thousands) viewing the TV show (including re-runs before Monday open). *Duration* is the time spent (in seconds) on the recommendation. *Dutch recommendations* is the total number of Dutch recommendations provided during the TV show, *Total recommendations* is the total number of recommendations provided during the TV show. *PTBV* is the price-to-book-value on the last day prior to the recommendation. *Reprise* is the amount of weeks since the previous recommendation on the same company.. The other variables are also dummies, where the AScX and Martine Hafkamp are used as the base-group. The T-statistics are shown in brackets and ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.